

### **ADOPTED**

BOARD OF SUPERVISORS COUNTY OF LOS ANGELES

8

October 19, 2010

Sachi a. Hamae

SACHI A. HAMAI EXECUTIVE OFFICER

Los Angeles County Board of Supervisors

> Gloria Molina First District

October 19, 2010

Mark Ridlev-Thomas Second District

> Zev Yaroslavsky Third District

> > Don Knabe Fourth District

Michael D. Antonovich Fifth District The Honorable Board of Supervisors County of Los Angeles 383 Kenneth Hahn Hall of Administration 500 West Temple Street Los Angeles, California 90012

**Dear Supervisors:** 

John F. Schunhoff, Ph.D. Interim Director

Gail V. Anderson, Jr., M.D. Interim Chief Medical Officer

313 N. Figueroa Street, Suite 912 Los Angeles, CA 90012

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APPROVAL OF A SOLE SOURCE AGREEMENT FOR EQUIPMENT MAINTENANCE AND SUPPORT SERVICES WITH TRANSLOGIC CORPORATION, DBA SWISSLOG HEALTHCARE SOLUTIONS (SUPERVISORIAL DISTRICT 1)

(3 VOTES)

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To improve health

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service and education.

#### **SUBJECT**

Request approval of a sole source Agreement for equipment maintenance and support services for the Automated Guided Vehicle System at LAC+USC Medical Center.

#### IT IS RECOMMENDED THAT YOUR BOARD:

- 1. Authorize the Interim Director of Health Services (Interim Director), or his designee, to execute a sole source Agreement with Translogic Corporation, dba Swisslog Healthcare Solutions (Swisslog), effective upon Board approval through September 30, 2013, for the provision of equipment maintenance and support services for the Automated Guided Vehicle System (AGVS) at LAC +USC Medical Center (LAC+USC MC), at a cost of \$157,057 for the period from Board approval through September 30, 2011 and a total cost of \$421,057 for the entire term through September 30, 2013.
- 2. Delegate authority to the Interim Director, or his designee, to adjust the annual cost during each year of the Agreement term by no more than 25 percent (25%) for emergency or unanticipated AGVS equipment maintenance and support.

#### PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

Approval of the first recommendation will allow the Interim Director, or his designee, to execute an Agreement, substantially similar to Exhibit I, to provide equipment maintenance and support services for the AGVS equipment at LAC+USC MC. Swisslog has supplied these services for a two-year period following equipment installation. Equipment maintenance and support services ceased October 1, 2010 because negotiation of the recommended Agreement took longer than anticipated and the Department of Health Services (DHS) was not able to submit the Agreement for your Board's approval prior to October 1, 2010. In the interim period, if equipment maintenance and support services are needed, DHS will obtain these services through the County's Purchasing Agent.

The second recommendation will delegate authority to the Interim Director, or his designee, to increase the annual cost for additional maintenance and support services as needed for emergency or unanticipated repairs that are not covered under the annual rate. The delegated authority is necessary to enable the Agreement to be amended timely to ensure that this critical equipment is maintained appropriately for patient and staff safety. This delegated authority will only be used when it is necessary.

When possible, DHS contracts with Original Equipment Manufacturers (OEMs) to ensure that the equipment, which often has proprietary components, performs in accordance with equipment specifications. Swisslog is the OEM. The sole source justification is attached as Attachment A.

In the first year of the Agreement, Swisslog service technicians will be on site three days a week, and two days per week during the Agreement's second and third years. LAC+USC MC expects to progressively participate in the equipment servicing so LAC+USC MC staff will be fully capable of performing the equipment maintenance without Swisslog technicians by the termination of the Agreement.

#### <u>Implementation of Strategic Plan Goals</u>

The recommended actions support Goal 4, Health and Mental Health, of the County's Strategic Plan.

#### FISCAL IMPACT/FINANCING

The Agreement cost is \$157,057 for the period from Board approval through September 30, 2011 and \$132,000 per year for the Agreement's second and third years, for a total cost of \$421,057 for the entire term.

The potential increase in cost under delegated authority for all three years is \$105,265 and will be funded using existing resources.

Funding is included in DHS' Fiscal Year 2010-11 Final Budget and will be requested in future fiscal years.

#### FACTS AND PROVISIONS/LEGAL REQUIREMENTS

Under the recommended Agreement, Swisslog will provide equipment maintenance and support for

The Honorable Board of Supervisors 10/19/2010 Page 3

all AGVS equipment. The AGVS is a laser-guided delivery system using proprietary software that navigates a course of 1.25 miles in LAC+USC MC's eight-story Inpatient Tower building and five-story Diagnostic and Treatment building. The system delivers linen (sheets, blankets, towels, and patient gowns) to the patient treatment areas (inpatient wards, intensive care units and clinics), and picks up trash in the patient treatment areas and delivers it to the loading dock for disposal. The system was installed in October 2008 and the equipment consists of transportation cars and carts, charging stations and dispatch terminals. Rather than using embedded wire, tape or chemically applied guide paths to the flooring or walls, the system uses laser technology which navigates the equipment through a predetermined course and interfaces with elevators and automatic doors.

The system operates with over 600 pieces of equipment and over 30 transportation cars which use laser technology to navigate over 200 pick-up and delivery sites at LAC+USC MC. To ensure the equipment operates efficiently and effectively, routine preventative maintenance and repair services are imperative for optimal performance, and Swisslog is the Original Equipment Manufacturer.

The Agreement provides for service engineers to be on site three days a week, eight hours a day during the Agreement's first year and two days a week, eight hours a day in the Agreements second and third years. The Agreement also provides for telephone support during off-hours and \$50,000 in replacement parts used in the performance of scheduled maintenance for each of the three years. A 20 percent discount is applied on all parts and service labor for Out-of-Scope Services if monthly invoices are paid within 30 days of receipt. Additionally, during the term of the Agreement, DHS and Swisslog will collaborate on training DHS employees to perform all the preventive maintenance work on the AGVS equipment.

The Agreement includes all Board of Supervisors' required provisions and may be terminated with or without cause upon 10 days' prior written notice. County Counsel has approved Exhibit I as to use and form.

The equipment maintenance and support services are not considered to be a Proposition A contract due to the intermittent provision of service, and, therefore, not subject to the Living Wage Program (County Code Charter 2.201).

#### **CONTRACTING PROCESS**

Not applicable.

#### **IMPACT ON CURRENT SERVICES (OR PROJECTS)**

Approval of the recommendations will ensure that critical AGVS equipment maintenance and repairs services are obtained.

The Honorable Board of Supervisors 10/19/2010 Page 4

Respectfully submitted,



JOHN F. SCHUNHOFF, Ph.D. Interim Director

JFS:rf

#### **Enclosures**

c: Chief Executive Office County Counsel Executive Office, Board of Supervisors

#### **SOLE SOURCE CHECKLIST**

Check	JUSTIFICATION FOR SOLE SOURCE CONTRACTS			
(√)	Identify applicable justification and provide documentation for each checked item.			
	> Only one bona fide source for the service exists; performance and price			
	competition are not available.  The services that the Department of Health Services is requesting Swisslog to provide is			
	the maintenance and repair for all the components that comprise the Automated Guided			
√	Vehicle System. Swisslog is the Original Equipment Manufacturer (OEM) and uses			
	proprietary software to guide over 30 transportation cars which use laser technology to			
	navigate over 200 pick-up and delivery sites at LAC+USC Medical Center. The system delivers linen (sheets, blankets, towels, and patient gowns) to the patient treatment areas			
	(inpatient wards, intensive care units and clinics), and picks up trash in the patient			
	treatment areas, and delivers it to the loading dock for disposal. To ensure the			
	equipment operates efficiently and effectively, routine preventative maintenance and			
	repair services are imperative for optimal performance, and Swisslog is the OEM.  During the term of the Agreement, DHS and Swisslog will collaborate on training DHS			
	employees to perform all the preventive maintenance work on the AGVS equipment.			
Quick action is required (emergency situation).				
	Proposals have been solicited but no satisfactory proposals were received.			
	Additional services are needed to complete an ongoing task and it would be prohibitively costly in time and money to seek a new service provider.			
	<ul> <li>Maintenance service agreements exist on equipment which must be serviced</li> </ul>			
	by the authorized manufacturer's service representatives.			
	> It is most cost-effective to obtain services by exercising an option under an			
	existing contract.			
	It is in the best interest of the County e.g., administrative cost savings, excessive learning curve for a new service provider, etc.			
	> Other reason. Please explain:			
	•			
	ANN kall			
	1/14/10			
She	eila Shima			
De	puty Chief Executive Officer, CEO Date			

RF:r

board letter equipment maintenance Swisslog 09.22.10

#### **DEPARTMENT OF HEALTH SERVICES**



#### **AGREEMENT**

BY AND BETWEEN

**COUNTY OF LOS ANGELES** 

AND

TRANSLOGIC CORPORATION

DBA

SWISSLOG HEALTHCARE SOLUTIONS

**FOR** 

EQUIPMENT MAINTENANCE AND SUPPORT SERVICES

**FOR** 

**AUTOMATED GUIDED VEHICLE SYSTEM** 

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LAC+USC MEDICAL CENTER

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#### **STANDARD EXHIBITS**

- A. STATEMENT OF WORK
- B. PRICING SCHEDULE, COST OF OUT-OF-SCOPE SERVICES AND EQUIPMENT LIST
- C. COUNTY'S ADMINISTRATION
- D. CONTRACTOR'S ADMINISTRATION
- E. CONTRACTOR ACKNOWLEDGEMENT AND CONFIDENTALITY AGREEMENT
- F. CONTRACTOR'S EEO CERTIFICATION
- G. JURY SERVICE ORDINANCE
- H. SAFELY SURRENDERED BABY LAW
- I. SWISSLOG AGV TRANSCAR LTC2 OPERATIONS AND MAINTENANCE MANUAL
- J. LAC+USC HEALTHCARE NETWORK POLICY NO. 302 RISK MANAGEMENT PROGRAM
- K. DEPARTMENT OF HEALTH SERVICES POLICY NO. 935.041 REMOTE ACCESS POLICY FOR OUTSIDE VENDORS

## AGREEMENT BY AND BETWEEN COUNTY OF LOS ANGELES

**AND** 

# TRANSLOGIC CORPORATION, DBA SWISSLOG HEALTHCARE SOLUTIONS FOR

# EQUIPMENT MAINTENANCE AND SUPPORT SERVICES FOR AUTOMATED GUIDED VEHICLE SYSTEM AT

#### LAC+USC MEDICAL CENTER

This Agreement and Exhibits made and entered into this \_\_\_\_ day of \_\_\_\_\_\_, 2010 by and between the County of Los Angeles, hereinafter referred to as County and Translogic Corporation, dba Swisslog Healthcare Solutions (Swisslog), hereinafter referred to as Contractor. Contractor is located at 10825 East 47<sup>th</sup> Av., Denver, CO 80239.

#### **RECITALS**

WHEREAS, pursuant to sections 1441 and 1445 of the California Health and Safety Code, County has established and operates, through its Department of Health Services (hereafter "DHS"), various County hospitals, comprehensive health centers, public health centers, and other health care facilities and programs (hereafter collectively referred to as "Facility(ies)"; and

WHEREAS, the County may contract with private businesses for equipment maintenance and support services when certain requirements are met; and

WHEREAS, the Contractor is a private firm specializing in providing preventive maintenance and repair services for an Automated Guided Vehicle System (AGVS) equipment; and

WHEREAS, County desires the services of a Contractor to provide preventive maintenance and repair services on an intermittent, part-time basis; and

WHEREAS, County has determined that the services to be provided under this Agreement are of a technical nature to the extent that DHS is unable to recruit qualified

personnel with the requisite training, knowledge, or experience to perform such services, and possess the competence, expertise, and personnel necessary to provide such services described hereunder; and

WHEREAS, Contractor is authorized under the laws of the State of California to engage in the business of providing preventive maintenance and support services for AGVS equipment and possesses the competence, expertise, and personnel necessary to provide such services described hereunder; and

WHEREAS, this Agreement is authorized by provisions of Section 1451 of the California Health and Safety Code and sections 26227 and 31000 of the California Government Code.

NOW THEREFORE, in consideration of the mutual covenants contained herein, and for good and valuable consideration, the parties agree to the following:

#### 1.0 APPLICABLE DOCUMENTS

Exhibits A, B, C, D, E, F, G, H, I, J AND K are attached to and form a part of this Agreement. In the event of any conflict or inconsistency in the definition or interpretation of any word, responsibility, schedule, or the contents or description of any task, deliverable, goods, service, or other work, or otherwise between the base Agreement and the Exhibits, or between Exhibits, such conflict or inconsistency shall be resolved by giving precedence first to the Agreement and then to the Exhibits according to the following priority.

#### **Standard Exhibits:**

- **1.1 EXHIBIT A** Statement of Work
- **1.2 EXHIBIT B** Pricing Schedule, Cost of Out-of-Scope Services and Equipment List
- **1.3 EXHIBIT C** County's Administration
- **1.4 EXHIBIT D** Contractor's Administration
- **1.5 EXHIBIT E -** Contractor Acknowledgement and Confidentiality Agreement
- **1.6 EXHIBIT F** Contractor's EEO Certification
- 1.7 EXHIBIT G Jury Service Ordinance
- **1.8 EXHIBIT H** Safely Surrendered Baby Law
- **1.9 EXHIBIT I -** Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
- **1.10 EXHIBIT J -** LAC+USC Healthcare Network Policy No. 302 Risk Management Program
- **1.11 EXHIBIT K** Department of Health Services Policy No. 935.041 Remote Access Policy for Outside Vendors

This Agreement and the Exhibits hereto constitute the complete and exclusive statement of understanding between the parties, and supersedes all previous agreements, written and oral, and all communications between the parties relating

to the subject matter of this Agreement. No change to this Agreement shall be valid unless prepared pursuant to sub-paragraph 8.1 - Amendments and signed by both parties.

#### 2.0 **DEFINITIONS**

The headings herein contained are for convenience and reference only and are not intended to define the scope of any provision thereof. The following words as used herein shall be construed to have the following meaning, unless otherwise apparent from the context in which they are used.

- **2.1 Agreement:** Contract executed between County and Contractor. It sets forth the terms and conditions for the issuance and performance of the Statement of Work, Exhibit A.
- **2.2 Contract:** Agreement executed between County and Contractor.
- **2.3 Contractor:** The sole proprietor, partnership, limited liability company or corporation that has entered into an Agreement with the County to perform or execute the work covered by the Statement of Work.
- **2.4 Contractor Representative:** The individual designated by the Contractor to administer the Agreement operations after the Agreement award.
- **2.5** Day(s): Calendar day(s) unless otherwise specified.
- **2.6 DHS:** Department of Health Services.
- **2.7 Director:** Director of DHS or his/her authorized designee.
- **2.8 DHS Facility(s):** Medical Centers, Rehabilitation Center, Health Centers, or Ambulatory Care Centers all within DHS.
- **2.9 Facility Contract Manager:** DHS Facility staff designated to manage the operations under this Agreement.
- **2.10 Facility Contract Monitor:** DHS Facility staff with responsibility to oversee the day to day activities of this Agreement, responsibility for inspections of any and all tasks, deliverables, goods, services and other work provided by the Contractor.
- **2.11 Fiscal Year:** The twelve (12) month period beginning July 1<sup>st</sup> and ending the following June 30<sup>th</sup>.

#### 3.0 **WORK**

- Pursuant to the provisions of this Agreement, the Contractor shall fully perform, complete and deliver on time, all tasks, deliverables, services and other work as set forth herein.
- 3.2 If the Contractor provides any tasks, deliverables, goods, services, or other work, other than as specified in this Agreement, the same shall be deemed to be a gratuitous effort on the part of the Contractor, and the Contractor shall have no claim whatsoever against the County.

#### 4.0 TERM OF AGREEMENT

- 4.1 The term of this Agreement shall commence effective upon Board approval, and shall continue in full force and effect to and include September 30, 2013, unless sooner terminated or extended, in whole or in part, as provided in this Agreement.
- 4.2 The Contractor shall notify DHS when this Agreement is within six (6) months from the expiration of the term as provided for hereinabove. Upon occurrence of this event, the Contractor shall send written notification to DHS at the address herein provided in Exhibit C County's Administration.

#### 5.0 ANNUAL COST, BILLING AND PAYMENT

- 5.1 Contractor shall be reimbursed for services according to Exhibit B Pricing Schedule, Cost of Out-of-Scope Services and Equipment List.
- 5.2 The Director may adjust the County's annual amount during each year of the Agreement term by no more than forty percent (40%) of the first year period of the Agreement term, effective upon Board of Supervisors approval through September 30, 2011, allocation, \$62,823 (Sixty Two Thousand Eight Hundred Twenty-Three Dollars). Any such adjustments shall be be made in accordance with Paragraph 8.1.2.
- 5.3 The Contractor shall not be entitled to payment or reimbursement for any tasks or services performed, nor for any incidental or administrative expenses whatsoever incurred in or incidental to performance hereunder, except as specified herein.

### 5.4 No Payment for Services Provided Following Expiration/Termination of Agreement

The Contractor shall have no claim against County for payment of any money or reimbursement, of any kind whatsoever, for any service provided by the Contractor after the expiration or other termination of this Agreement. Should the Contractor receive any such payment it shall immediately notify County and shall immediately repay all such funds to County. Payment by County for services rendered after

expiration/termination of this Agreement shall not constitute a waiver of County's right to recover such payment from the Contractor. This provision shall survive the expiration or other termination of this Agreement.

#### 5.5 Invoices and Payments

- 5.5.1 The Contractor shall invoice the County in arrears only for providing the tasks, deliverables, goods, services, and other work specified in Exhibit A Statement of Work and elsewhere hereunder. The Contractor shall prepare invoices, which shall include the charges owed to the Contractor by the County under the terms of this Agreement. The Contractor's payments shall be as provided in Exhibit B Pricing Schedule, Cost of Out-of-Scope Services and Equipment List, and the Contractor shall be paid only for the tasks, deliverables, goods, services, and other work approved in writing by the County. If the County does not approve work in writing no payment shall be due to the Contractor for that work.
- 5.5.2 The Contractor's invoices shall be priced in accordance with Exhibit B Pricing Schedule, Cost of Out-of-Scope Services and Equipment List.
- 5.5.3 The Contractor's invoices shall contain the information set forth in Exhibit A Statement of Work describing the tasks, deliverables, goods, services, work hours, and Facility(s) and/or other work for which payment is claimed.
- 5.5.4 The Contractor shall submit the monthly invoices to the County by the 15<sup>th</sup> calendar day of the month following the month of service. If the invoices are paid promptly, within thirty (30) days of receipt, there will be a prompt payment discount of 20% on the monthly charge on parts and labor as shown in Exhibit B Pricing Schedule, Out-of-Scope Services and Equipment List.
- 5.5.5 County shall not pay Contractor for travel or miscellaneous expenses.
- 5.5.6 All invoices under this Agreement shall be submitted with two (2) copies to the following address:

LAC+USC Healthcare Network PO Box 861749 Los Angeles, CA 90086

#### 5.5.7 County Approval of Invoices

All invoices submitted by the Contractor for payment must have the written approval of the Facility Contract Manager prior to any payment thereof. In no event shall the County be liable or responsible for any payment prior to such written approval. Approval for payment will not be unreasonably withheld

5.5.8 The County shall pay sales tax on taxable purchase (tangible personal property) from Contractors who possess and maintain a California State "Valid Seller's Permit" as required by the California State, Board of Equalization. Contractors who sell personal property from outside of the State of California and possess a valid California seller's permit shall pay the sales tax. The County shall verify the seller's permit number by contacting the California State Board of Equalization or via the Internet at, www.boc.ca.gov/.

### 6.0 ADMINISTRATION OF AGREEMENT - COUNTY COUNTY ADMINISTRATION

The Director shall have the authority to administer this Agreement on behalf of the County. Director retains professional and administrative responsibility for the services rendered under this Agreement. A listing of all County Administration referenced in the following sub-paragraphs is designated in Exhibit C - County's Administration. The County shall notify the Contractor in writing of any change in the names or addresses shown.

#### 6.1 FACILITY CONTRACT MANAGER

The responsibilities of the Facility Contract Manager include:

- meeting with the Contractor's Representative on a regular basis; and
- inspecting any and all tasks, deliverables, goods, services, or other work provided by or on behalf of the Contractor.

The Facility Contract Manager is not authorized to make any changes in any of the terms and conditions of this Agreement and is not authorized to further obligate County in any respect whatsoever.

#### 6.2 FACILITY CONTRACT MONITOR

The Facility Contract Monitor is responsible for overseeing the day-to-day administration of this Agreement. The Contract Monitor reports to the Facility Contract Manager.

### 7.0 ADMINISTRATION OF AGREEMENT - CONTRACTOR 7.1 CONTRACTOR'S REPRESENTATIVE

- 7.1.1 The Contractor's Representative is designated in Exhibit D Contractor's Administration. The Contractor shall notify the County in writing of any change in the name or address of the Contractor's Representative.
- 7.1.2 The Contractor's Representative shall be responsible for the Contractor's day-to-day activities as related to this Agreement and shall coordinate with Facility Contract Manager and Facility Contract Monitor on a regular basis.

#### 7.2 CONTRACTOR'S AUTHORIZED OFFICIAL(S)

- 7.2.1 Contractor's Authorized Official(s) are designated in Exhibit D. Contractor shall promptly notify County in writing of any change in the name(s) or address(es) of Contractor's Authorized Official(s).
- 7.2.2 Contractor represents and warrants that all requirements of Contractor have been fulfilled to provide actual authority to such officials to execute documents under this Agreement on behalf of Contractor.

#### 7.3 APPROVAL OF CONTRACTOR'S STAFF

County has the absolute right to approve or disapprove all of the Contractor's staff performing work hereunder and any proposed changes in the Contractor's staff, including, but not limited to, the Contractor's Representative.

#### 7.4 CONTRACTOR'S STAFF IDENTIFICATION

Initially, County shall provide all staff providing services under this Agreement with a photo identification badge. The replacement cost for a lost or stolen Contrator identification badge shall be at Contractor's expense.

#### 7.5 BACKGROUND AND SECURITY INVESTIGATIONS

7.5.1 All Contractor staff performing work under this Agreement shall undergo and pass, to the satisfaction of County, a background investigation as a condition of beginning and continuing to work under this Agreement. County shall use its discretion in determining the method of background clearance to be used, which may include but is not limited to fingerprinting. The fees associated with obtaining the background information shall be at the expense of the Contractor, regardless if the Contractor's staff passes or fails the background clearance investigation. County shall perform the background check and bill Contractor for the cost or deduct such amount from funds owed by County to Contractor.

- 7.5.2 County may request that the Contractor's staff be immediately removed from working on the County Agreement at any time during the term of this Agreement. County will not provide to the Contractor nor to the Contractor's staff any information obtained through the County conducted background clearance.
- 7.5.3 County may immediately, at the sole discretion of the County, deny or terminate facility access to the Contractor's staff that do not pass such investigation(s) to the satisfaction of the County whose background or conduct is incompatible with County facility access.
- 7.5.4 Disqualification, if any, of the Contractor's staff, pursuant to this sub-paragraph 7.5, shall not relieve the Contractor of its obligation to complete all work in accordance with the terms and conditions of this Agreement.

#### 7.6 CONFIDENTIALITY

- 7.6.1 Contractor shall maintain the confidentiality of all records and information, including, but not limited to, billings, County records and patient records, in accordance with all applicable Federal, State and local laws, rules, regulations, ordinances, directives, guidelines, policies and procedures relating to confidentiality, including, without limitation, County policies concerning information technology security and the protection of confidential records and information.
- 7.6.2 Contractor shall indemnify, defend, and hold harmless County, its Special Districts, elected and appointed officers, employees, and agents, from and against any and all claims, demands, damages, liabilities, losses, costs and expenses, administrative penalties and fines assessed including, without limitation, defense costs and legal, accounting and other expert, consulting, or professional fees, arising from, connected with, or related to any failure by Contractor, its officers, employees, agents, or subcontractors, to comply with this Paragraph 7.6, as determined by County in its sole judgment. Any legal defense pursuant to Contractor's indemnification obligations under this Paragraph 7.6 shall be conducted by Contractor and performed by counsel selected by Contractor and approved by County. Notwithstanding the preceding sentence, County shall have the right to participate in any such defense at its sole cost and expense, except that in the event Contractor fails to provide County with a full and adequate defense, as determined by County in its sole judgment, County shall be entitled to retain its own counsel, including, without limitation, County Counsel, and

reimbursement from Contractor for all such costs and expenses incurred by County in doing so. Contractor shall not have the right to enter into any settlement, agree to any injunction, or make any admission, in each case, on behalf of County without County's prior written approval.

- 7.6.3 Contractor shall inform all of its officers, employees, agents and subcontractors providing services hereunder of the confidentiality and indemnification provisions of this Agreement.
- 7.6.4 Contractor shall sign and adhere to the provisions of the "Contractor Acknowledgement and Confidentiality Agreement", Exhibit E.

#### 7.7 INTENTIONALLY OMITTED - MEDICAL SCREENING

#### 7.8 STAFF PERFORMANCE UNDER THE INFLUENCE

Contractor shall not knowingly permit any employee to perform services under this Agreement while under the influence of any alcoholic beverage, medication, narcotic, or other substance, which might impair their physical or mental performance.

### 7.9 MANDATORY PERSONNEL MONITORING REPORTS - (Intentionally Omitted)

#### 8.0 STANDARD TERMS AND CONDITIONS

#### 8.1 AMENDMENTS

- 8.1.1 For any change which affects the term, or any term or condition included under this Agreement, an Amendment shall be prepared by the County and then executed by the Board of Supervisors and the Contractor.
- 8.1.2 The Director or his authorized designee is authorized to execute and approve amendments in the form of Administrative Amendments which may add or delete services and specific pieces of equipment as necessary to provide patient care or to assure that Facility(s) operations are maintained. Such Administrative Amendments may result in a decrease or increase to the annual amount in accordance with Paragraph 5.2.
- 8.1.3 The Director may require the addition and/or change of certain terms and conditions in the Agreement during the term of this Agreement. The County reserves the right to add and/or change such provisions as required by the County's Board of Supervisor or Director. To implement such changes, an Amendment to the

Agreement shall be prepared by the County and then executed by the Director and Contractor.

#### 8.2 ASSIGNMENT AND DELEGATION

- 8.2.1 The Contractor shall not assign its rights or delegate its duties under this Agreement, or both, whether in whole or in part, without the prior written consent of County, in its discretion, and any attempted assignment or delegation without such consent shall be null and void. For purposes of this sub-paragraph, County consent shall require a written amendment to the Agreement, which is formally approved and executed by the parties. Any payments by the County to any approved delegate or assignee on any claim under this Agreement shall be deductible, at County's sole discretion, against the claims, which the Contractor may have against the County.
- 8.2.2 Shareholders, partners, members, or other equity holders of Contractor may transfer, sell, exchange, assign, or divest themselves of any interest they may have therein. However, in the event any such sale, transfer, exchange, assignment, or divestment is effected in such a way as to give majority control of Contractor to any person(s), corporation, partnership, or legal entity other than the majority controlling interest therein at the time of execution of the Agreement, such disposition is an assignment requiring the prior written consent of County in accordance with applicable provisions of this Agreement.
- 8.2.3 Any assumption, assignment, delegation, or takeover of any of the Contractor's duties, responsibilities, obligations, or performance of same by any entity other than the Contractor, whether through assignment, subcontract, delegation, merger, buyout, or any other mechanism, with or without consideration for any reason whatsoever without County's express prior written approval, shall be a material breach of the Agreement which may result in the termination of this Agreement. In the event of such termination, County shall be entitled to pursue the same remedies against Contractor as it could pursue in the event of default by Contractor.

#### 8.3 AUTHORIZATION WARRANTY

The Contractor represents and warrants that the person executing this Agreement for the Contractor is an authorized agent who has actual authority to bind the Contractor to each and every term, condition, and obligation of this Agreement and that all requirements of the Contractor have been fulfilled to provide such actual authority.

#### 8.4 BUDGET REDUCTIONS

In the event that the County's Board of Supervisors adopts, in any fiscal year, a County Budget which provides for reductions in the salaries and benefits paid to the majority of County employees and imposes similar reductions with respect to County contracts, the County reserves the right to reduce its payment obligation under this Agreement correspondingly for that fiscal year and any subsequent fiscal year during the term of this Agreement (including any extensions), and the services to be provided by the Contractor under this Agreement shall also be reduced correspondingly. The County's notice to the Contractor regarding said reduction in payment obligation shall be provided within thirty (30) calendar days of the Board's approval of such actions. Except as set forth in the preceding sentence, the Contractor shall continue to provide all of the services set forth in this Agreement.

## 8.5 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION – LOWER TIER COVERED TRANSACTIONS (45 C.F.R. PART 76)

Contractor hereby acknowledges that the County is prohibited from contracting with and making sub-awards to parties that are suspended, debarred, ineligible, or excluded or whose principals are suspended. debarred, ineligible, or excluded from securing federally funded contracts. By executing this Agreement, Contractor certifies that neither it nor any of its owners, officers, partners, or directors or other principals is currently suspended, debarred, ineligible, or excluded from securing federally funded contracts. Further, by executing this Agreement, Contractor certifies that, to its knowledge, none of its subcontractors, at any tier, or any owner, officer, partner, director, or other principal of any subcontractor is currently suspended, debarred, ineligible, or excluded from securing federally funded contracts. Contractor shall immediately notify County in writing, during the term of this Agreement, should it or any of its subcontractors or any principals of either be suspended, debarred, ineligible, or excluded from securing federally funded contracts. Failure of Contractor to comply with this provision shall constitute a material breach of this Agreement upon which the County may immediately terminate or suspend this Agreement.

#### 8.6 COMPLAINTS

The Contractor shall develop, maintain and operate procedures for receiving, investigating and responding to complaints.

8.6.1 Within 30 business days after Agreement effective date, the Contractor shall provide the County with the Contractor's policy for receiving, investigating and responding to user complaints.

- 8.6.2 The County will review the Contractor's policy and provide the Contractor with approval of said plan or with requested changes.
- 8.6.3 If the County requests changes in the Contractor's policy, the Contractor shall make such changes and resubmit the plan within 15 business days for County approval.
- 8.6.4 If, at any time, the Contractor wishes to change the Contractor's policy, the Contractor shall submit proposed changes to the County for approval before implementation.
- 8.6.5 The Contractor shall preliminarily investigate all complaints and notify the Facility Contract Manager of the status of the investigation within 15 business days of receiving the complaint.
- 8.6.6 When complaints cannot be resolved informally, a system of follow-through shall be instituted which adheres to formal plans for specific actions and strict time deadlines.
- 8.6.7 Copies of all written responses shall be sent to the Facility Contract Manager within 15 business days of mailing to the complainant.

#### 8.7 COMPLIANCE WITH APPLICABLE LAWS, RULES AND REGULATIONS

- 8.7.1 In the performance of this Agreement, Contractor shall comply with all current and applicable Federal, State and local laws, rules, regulations, ordinances, directives, guidelines, policies and procedures, including, but not limited to standards of The Joint Commission, its National Patient Safety Goals, California Code of Regulations, Title 22, Division 5 regulations and all other applicable industry best practices standards. All provisions required thereby to be included in this Agreement are incorporated herein by reference.
- 8.7.2 Contractor shall indemnify, defend, and hold harmless County, its officers, employees, and agents, from and against any and all claims, demands, damages, liabilities, losses, administrative penalties and fines assessed, costs, and expenses, including, without limitation, defense costs and legal, accounting and other expert, consulting or professional fees, arising from, connected with, or related to any failure by Contractor, its officers, employees, agents, or subcontractors, to comply with any such laws, rules, regulations, ordinances, directives, guidelines, policies, or procedures, as determined by County in its sole judgment. Any legal defense pursuant to Contractor's indemnification obligations under this Paragraph 8.7 shall be

conducted by Contractor and performed by counsel selected by Contractor and approved by County. Notwithstanding the preceding sentence, County shall have the right to participate in any such defense at its sole cost and expense, except that in the event Contractor fails to provide County with a full and adequate defense, as determined by County in its sole judgment, County shall be entitled to retain its own counsel, including, without limitation, County Counsel, and reimbursement from Contractor for all such costs and expenses incurred by County in doing so. Contractor shall not have the right to enter into any settlement, agree to any injunction or other equitable relief, or make any admission, in each case, on behalf of County without County's prior written approval.

#### 8.7.3 Facilities Rules and Regulations

During the time that Contractor's agents, employees, or subcontractors are at a Facility(s), Contractor and such persons shall be subject to the rules and regulations of that Facility(s). Facility Contract Manager shall furnish a copy of rules and regulations to Contractor pertaining to the Facility(s) prior to the execution of this Agreement and, during the term of this Agreement, shall furnish Contractor with any changes thereto as from time to time may be adopted. It is the responsibility of Contractor to acquaint all persons who may provide services hereunder with such rules and regulations. Contractor agrees to immediately and permanently withdraw any of its employees or subcontractors from the provision of services hereunder upon receipt of written notice from the Director that: (1) such employee or subcontractor has violated such rules or regulations, or (2) such employee's or subcontractor's actions while on County premises, indicate that such employee or subcontractor's actions while on County premises, indicate that such employee or subcontractor may adversely affect the delivery of health care services to County patients. The Director must submit with such notice a written statement of the facts supporting any such alleged violation or action.

### 8.8 COMPLIANCE WITH CIVIL RIGHTS LAWS-ANTI-DISCRIMINATION AND AFFIRMATIVE ACTION LAWS

8.8.1 The Contractor hereby assures that it will comply with Subchapter VI of the Civil Rights Act of 1964, 42 USC Sections 2000 (e) (1) through 2000 (e) (17); the Fair Employment & Housing Act, Government Code Section 12920-12922; and Affirmative Action in County Agreements, Chapter 4.32 of the Los Angeles County Code to the end that no person shall, on the

- grounds of race, color, religious creed, ancestry, national origin, sex, sexual orientation, age, physical or mental disability, medical condition, marital status, or political affiliation, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under this Agreement or under any project, program, or activity supported by this Agreement.
- 8.8.2 The Contractor certifies and agrees that all persons employed by it, its affiliates, subsidiaries, or holding companies are and shall be treated equally without regard to or because of race, color, religious creed, ancestry, national origin, sex, sexual orientation, age, physical or mental disability, medical condition, marital status, or political affiliation, in compliance with all applicable Federal and State anti-discrimination laws and regulations.
- 8.8.3 The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to race, color, religious creed, ancestry, national origin, sex, sexual orientation, age, physical or mental disability, medical condition, marital status, or political affiliation, in compliance with all applicable Federal and State anti-discrimination laws and regulations. Such action shall include, but is not limited to: employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.
- 8.8.4 The Contractor certifies and agrees that it will deal with its subcontractors, bidders, or vendors without regard to or because of race, color, religious creed, ancestry, national origin, sex, sexual orientation, age, physical or mental disability, medical condition, marital status, or political affiliation.
- 8.8.5 The Contractor certifies and agrees that it, its affiliates, subsidiaries, or holding companies shall comply with all applicable Federal and State laws and regulations to the end that no person shall, on the grounds of race, color, religious creed, ancestry, national origin, sex, sexual orientation, age, physical or mental disability, medical condition, marital status, or political affiliation, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under this Agreement or under any project, program, or activity supported by this Agreement.

- 8.8.6 The Contractor shall allow County representatives access to the Contractor's employment records during regular business hours to verify compliance with the provisions of this sub-paragraph 8.8 when so requested by the County.
- 8.8.7 If the County finds that any provisions of this sub-paragraph 8.8 have been violated, such violation shall constitute a material breach of this Agreement upon which the County may terminate or suspend this Agreement. While the County reserves the right to determine independently that the anti-discrimination provisions of this Agreement have been violated, in addition, a determination by the California Fair Employment Practices Commission or the Federal Equal Employment Opportunity Commission that the Contractor has violated Federal or State anti-discrimination laws or regulations shall constitute a finding by the County that the Contractor has violated the anti-discrimination provisions of this Agreement.
- 8.8.8 The parties agree that in the event the Contractor violates any of the anti-discrimination provisions of this Agreement, the County shall, at its sole option, be entitled to the sum of Five Hundred Dollars (\$500) for each such violation pursuant to California Civil Code Section 1671 as liquidated damages in lieu of terminating or suspending this Agreement.
- 8.8.9 The Contractor shall certify to, and comply with, the provisions of Exhibit F Contractor's EEO Certification.

#### 8.9 COMPLIANCE WITH THE COUNTY'S JURY SERVICE PROGRAM

8.9.1 <u>Jury Service Program</u>

This Agreement is subject to the provisions of the County's ordinance entitled Contractor Employee Jury Service ("Jury Service Program") as codified in Sections 2.203.010 through 2.203.090 of the Los Angeles County Code, a copy of which is attached as Exhibit G and incorporated by reference into and made a part of this Agreement.

#### 8.9.2 Written Employee Jury Service Policy

 Unless the Contractor has demonstrated to the County's satisfaction either that the Contractor is not a "Contractor" as defined under the Jury Service Program (Section 2.203.020 of the County Code) or that the Contractor qualifies for an exception to the Jury Service Program (Section 2.203.070 of the County Code), the Contractor shall have and adhere to a written policy that provides that its Employees shall receive

- from the Contractor, on an annual basis, no less than five days of regular pay for actual jury service. The policy may provide that Employees deposit any fees received for such jury service with the Contractor or that the Contractor deduct from the Employee's regular pay the fees received for jury service.
- 2. For purposes of this sub-paragraph. "Contractor" means a person, partnership, corporation, or other entity, which has a contract with the County or a subcontract with a County Contractor and has received or will receive an aggregate sum of \$50,000 or more in any 12-month period under one or more County contracts or subcontracts. "Employee" means any California resident who is a full-time employee of the Contractor. "Full-time" means 40 hours or more worked per week, or a lesser number of hours if: 1) the lesser number is a recognized industry standard as determined by the County, or 2) Contractor has a long-standing practice that defines the lesser number of hours as full-time. Full-time employees providing short-term, temporary services of 90 days or less within a 12-month period are not considered full-time for purposes of the Jury Service Program. If the Contractor uses any subcontractor to perform services for the County under the Agreement, the subcontractor shall also be subject to the provisions of this sub-paragraph. The provisions of this subparagraph shall be inserted into any such subcontract agreement and a copy of the Jury Service Program shall be attached to the Agreement.
- 3. If the Contractor is not required to comply with the Jury Service Program when the contract commences, the Contractor shall have a continuing obligation to review the applicability of its "exception status" from the Jury Service Program, and the Contractor shall immediately notify the County if the Contractor at any time either comes within the Jury Service Program's definition of "Contractor" or if the Contractor no longer qualifies for an exception to the Jury Service Program. In either event, the Contractor shall immediately implement a written policy consistent with the Jury Service Program. The County may also require, at any time during the contract and at its sole discretion, that the Contractor demonstrate, to the County's satisfaction that the Contractor either continues to remain outside of the Jury Service Program's definition of "Contractor" and/or that the Contractor continues to qualify for an exception to the Program.

4. Contractor's violation of this sub-paragraph of the Agreement may constitute a material breach of the Agreement. In the event of such material breach, County may, in its sole discretion, terminate the Agreement and/or bar the Contractor from the award of future County contracts for a period of time consistent with the seriousness of the breach.

#### 8.10 CONFLICT OF INTEREST

- 8.10.1 No County employee whose position with the County enables such employee to influence the award or administration of this Agreement or any competing contract, and no spouse or economic dependent of such employee, shall be employed in any capacity by the Contractor or have any other direct or indirect financial interest in this Agreement. No officer or employee of the Contractor who may financially benefit from the performance of work hereunder shall in any way participate in the County's approval, or ongoing evaluation, of such work, or in any way attempt to unlawfully influence the County's approval or ongoing evaluation of such work.
- 8.10.2 The Contractor shall comply with all conflict of interest laws, ordinances, and regulations now in effect or hereafter to be enacted during the term of this Agreement. The Contractor warrants that it is not now aware of any facts that create a conflict of interest. If the Contractor hereafter becomes aware of any facts that might reasonably be expected to create a conflict of interest, it shall immediately make full written disclosure of such facts to the County. Full written disclosure shall include, but is not limited to, identification of all persons implicated and a complete description of all relevant circumstances. Failure to comply with the provisions of this sub-paragraph shall be a material breach of this Agreement.

### 8.11 CONSIDERATION OF HIRING COUNTY EMPLOYEES TARGETED FOR LAYOFF/OR RE-EMPLOYMENT LIST

Should the Contractor require additional or replacement personnel after the effective date of this Agreement to perform the services set forth herein, the Contractor shall give first consideration for such employment openings to qualified, permanent County employees who are targeted for layoff or qualified, former County employees who are on a re-employment list during the life of this Agreement.

### 8.12 CONSIDERATION OF HIRING GAIN/GROW PROGRAM PARTICIPANTS

- 8.12.1 Should the Contractor require additional or replacement personnel after the effective date of this Agreement, the Contractor shall give consideration for any such employment openings to participants in the County's Department of Public Social Services Greater Avenues for Independence (GAIN) Program or General Relief Opportunity for Work (GROW) Program who meet the Contractor's minimum qualifications for the open position. For this purpose, consideration shall mean that the Contractor will interview qualified candidates. The County will refer GAIN/GROW participants by job category to the Contractor.
- 8.12.2 In the event that both laid-off County employees and GAIN/GROW participants are available for hiring, County employees shall be given first priority.

#### 8.13 CONTRACTOR RESPONSIBILITY AND DEBARMENT

#### 8.13.1 Responsible Contractor

A responsible Contractor is a Contractor who has demonstrated the attribute of trustworthiness, as well as quality, fitness, capacity and experience to satisfactorily perform the contract. It is the County's policy to conduct business only with responsible Contractors.

#### 8.13.2 Chapter 2.202 of the County Code

The Contractor is hereby notified that, in accordance with Chapter 2.202 of the County Code, if the County acquires information concerning the performance of the Contractor on this or other contracts which indicates that the Contractor is not responsible, the County may, in addition to other remedies provided in the contract, debar the Contractor from bidding or proposing on, or being awarded, and/or performing work on County contracts for a specified period of time, which generally will not exceed five years but may exceed five years or be permanent if warranted by the circumstances, and terminate any or all existing contracts the Contractor may have with the County.

#### 8.13.3 Non-responsible Contractor

The County may debar a Contractor if the Board of Supervisors finds, in its discretion, that the Contractor has done any of the following: (1) violated a term of a contract with the County or a nonprofit corporation created by the County, (2) committed an act or omission which negatively reflects on the Contractor's quality, fitness or capacity to perform a contract with the County, any other public entity, or a nonprofit corporation created by the

County, or engaged in a pattern or practice which negatively reflects on same, (3) committed an act or offense which indicates a lack of business integrity or business honesty, or (4) made or submitted a false claim against the County or any other public entity.

#### 8.13.4 Contractor Hearing Board

- 1. If there is evidence that the Contractor may be subject to debarment, the Department will notify the Contractor in writing of the evidence which is the basis for the proposed debarment and will advise the Contractor of the scheduled date for a debarment hearing before the Contractor Hearing Board.
- 2. The Contractor Hearing Board will conduct a hearing where evidence on the proposed debarment is presented. The Contractor and/or the Contractor's representative shall be given an opportunity to submit evidence at that hearing. After the hearing, the Contractor Hearing Board shall prepare a tentative proposed decision, which shall contain a recommendation regarding whether the Contractor should be debarred, and, if so, the appropriate length of time of the debarment. The Contractor and the Department shall be provided an opportunity to object to the tentative proposed decision prior to its presentation to the Board of Supervisors.
- 3. After consideration of any objections, or if no objections are submitted, a record of the hearing, the proposed decision, and any other recommendation of the Contractor Hearing Board shall be presented to the Board of Supervisors. The Board of Supervisors shall have the right to modify, deny, or adopt the proposed decision and recommendation of the Contractor Hearing Board.
- 4. If a Contractor has been debarred for a period longer than five (5) years, that Contractor may after the debarment has been in effect for at least five (5) years, submit a written request for review of the debarment determination to reduce the period of debarment or terminate the debarment. The County may, in its discretion, reduce the period of debarment or terminate the debarment if it finds that the Contractor has adequately demonstrated one or more of the following: (1) elimination of the grounds for which the debarment was imposed; (2) a bona fide change in ownership or management; (3) material evidence discovered after debarment was imposed; or (4) any other reason that is in the best interests of the County.

- 5. The Contractor Hearing Board will consider a request for review of a debarment determination only where (1) the Contractor has been debarred for a period longer than five (5) years; (2) the debarment has been in effect for at least five (5) years; and (3) the request is in writing, states one or more of the grounds for reduction of the debarment period or termination of the debarment, and includes supporting documentation. Upon receiving an appropriate request, the Contractor Hearing Board will provide notice of the hearing on the request. At the hearing, the Contractor Hearing Board shall conduct a hearing where evidence on the proposed reduction of debarment period or termination of debarment is presented. This hearing shall be conducted and the request for review decided by the Contractor Hearing Board pursuant to the same procedures as for a debarment hearing.
- 6. The Contractor Hearing Board's proposed decision shall contain a recommendation on the request to reduce the period of debarment or terminate the debarment. The Contractor Hearing Board shall present its proposed decision and recommendation to the Board of Supervisors. The Board of Supervisors shall have the right to modify, deny, or adopt the proposed decision and recommendation of the Contractor Hearing Board.

#### 8.13.5 Subcontractors of Contractor

These terms shall also apply to subcontractors of County Contractors.

### 8.14 CONTRACTOR'S ACKNOWLEDGEMENT OF COUNTY'S COMMITMENT TO THE SAFELY SURRENDERED BABY LAW

The Contractor acknowledges that the County places a high priority on the implementation of the Safely Surrendered Baby Law. The Contractor understands that it is the County's policy to encourage all County Contractors to voluntarily post the County's "Safely Surrendered Baby Law" poster in a prominent position at the Contractor's place of business. The Contractor will also encourage its subcontractors, if any, to post this poster in a prominent position in the subcontractor's place of business. The County's Department of Children and Family Services will supply the Contractor with the poster to be used. Information on how to receive the poster can be found on the Internet at <a href="https://www.babysafela.org">www.babysafela.org</a>.

### 8.15 CONTRACTOR'S EXCLUSION FROM PARTICIPATING IN A FEDERALLY FUNDED PROGRAM

- 8.15.1 Contractor hereby warrants that neither it nor any of its staff members is restricted or excluded from providing services under any health care program funded by the Federal government, directly or indirectly, in whole or in part, and that Contractor will notify Director within ten (10) calendar days in writing of: (1) any event that would require Contractor or a staff member's mandatory exclusion from participation in a Federally funded health care program; and (2) any exclusionary action taken by any agency of the Federal government against Contractor or one or more staff members barring it or the staff members from participating in a Federally funded health care program, whether such bar is direct or indirect, or whether such bar is in whole or in part.
- 8.15.2 Contractor shall indemnify and hold County harmless against any and all loss or damage County may suffer arising from any Federal exclusion of Contractor or its staff members from such participation in a Federally funded health care program.
- 8.15.3 Failure by Contractor to meet the requirements of this subparagraph shall constitute a material breach of contract upon which County may immediately terminate or suspend this Agreement.

### 8.16 CONTRACTOR'S WARRANTY OF ADHERENCE TO COUNTY'S CHILD SUPPORT COMPLIANCE PROGRAM

- 8.16.1 The Contractor acknowledges that the County has established a goal of ensuring that all individuals who benefit financially from the County through contract are in compliance with their court-ordered child, family and spousal support obligations in order to mitigate the economic burden otherwise imposed upon the County and its taxpayers.
- 8.16.2 As required by the County's Child Support Compliance Program (County Code Chapter 2.200) and without limiting the Contractor's duty under this Agreement to comply with all applicable provisions of law, the Contractor warrants that it is now in compliance and shall during the term of this Agreement maintain in compliance with employment and wage reporting requirements as required by the Federal Social Security Act (42 USC Section 653a) and California Unemployment Insurance Code Section 1088.5, and shall implement all lawfully served Wage and Earnings Withholding Orders or Child Support Services Department Notices of Wage and Earnings Assignment for Child, Family or Spousal Support, pursuant to Code of Civil Procedure Section 706.031 and Family Code Section 5246(b).

### 8.17 CONTRACTOR'S WARRANTY OF COMPLIANCE WITH COUNTY'S DEFAULTED PROPERTY TAX REDUCTION PROGRAM

- 8.17.1 Contractor acknowledges that County has established a goal of ensuring that all individuals and businesses that benefit financially from County through contract are current in paying their property tax obligations (secured and unsecured roll) in order to mitigate the economic burden otherwise imposed upon County and its taxpayers.
- 8.17.2 Unless Contractor qualifies for an exemption or exclusion,
  Contractor warrants and certifies that to the best of its knowledge it
  is now in compliance, and during the term of this contract will
  maintain compliance, with Los Angeles Code Chapter 2.206.

#### 8.18 COUNTY'S QUALITY ASSURANCE PLAN

The County or its agent will evaluate the Contractor's performance under this Agreement on not less than an annual basis. Such evaluation will include assessing the Contractor's compliance with all Agreement terms and conditions and performance standards. Contractor deficiencies which the County determines are severe or continuing and that may place performance of the Agreement in jeopardy if not corrected will be reported to the Board of Supervisors.

The report will include improvement/corrective action measures taken by the County and the Contractor. If improvement does not occur consistent with the corrective action measures, the County may terminate this Agreement or impose other penalties as specified in this Agreement.

#### 8.19 DAMAGE TO COUNTY FACILITIES. BUILDINGS OR GROUNDS

- 8.19.1 The Contractor shall repair, or cause to be repaired, at its own cost, any and all damage to County facilities, buildings, or grounds caused by the Contractor or employees or agents of the Contractor. Such repairs shall be made immediately after the Contractor has become aware of such damage, but in no event later than thirty (30) days after the occurrence.
- 8.19.2 If the Contractor fails to make timely repairs, County may make any necessary repairs. All costs incurred by County, as determined by County, for such repairs shall be repaid by the Contractor by cash payment upon demand.
- 8.19.3 County reserves the unilateral right to make any repairs which Director determines, in his/her sole discretion, to be a public safety issue requiring immediate repair. County will bill Contractor for the

cost of said repair or deduct said cost from any outstanding amounts owed by County to Contractor.

#### 8.20 EMPLOYMENT ELIGIBILITY VERIFICATION

- 8.20.1 The Contractor warrants that it fully complies with all Federal and State statutes and regulations regarding the employment of aliens and others and that all its employees performing work under this Agreement meet the citizenship or alien status requirements set forth in Federal and State statutes and regulations. The Contractor shall obtain, from all employees performing work hereunder, all verification and other documentation of employment eligibility status required by Federal and State statutes and regulations including, but not limited to, the Immigration Reform and Control Act of 1986, (P.L. 99-603), or as they currently exist and as they may be hereafter amended. The Contractor shall retain all such documentation for all covered employees for the period prescribed by law.
- 8.20.2 The Contractor shall indemnify, defend, and hold harmless, the County, its agents, officers, and employees from employer sanctions and any other liability which may be assessed against the Contractor or the County or both in connection with any alleged violation of any Federal or State statutes or regulations pertaining to the eligibility for employment of any persons performing work under this Agreement.

#### 8.21 FACSIMILE REPRESENTATIONS

The County and the Contractor hereby agree to regard facsimile representations of original signatures of authorized officers of each party, when appearing in appropriate places on the Amendments prepared pursuant to sub-paragraph 8.1, and received via communications facilities, as legally sufficient evidence that such original signatures have been affixed to Amendments to this Agreement, such that the parties need not follow up facsimile transmissions of such documents with subsequent (non-facsimile) transmission of "original" versions of such documents.

#### 8.22 FAIR LABOR STANDARDS

The Contractor shall comply with all applicable provisions of the Federal Fair Labor Standards Act and shall indemnify, defend, and hold harmless the County and its agents, officers, and employees from any and all liability, including, but not limited to, wages, overtime pay, liquidated damages, penalties, court costs, and attorneys' fees arising under any wage and hour law, including, but not limited to, the Federal Fair Labor Standards Act, for work performed by the Contractor's employees for which the County may be found jointly or solely liable.

#### 8.23 FEDERAL ACCESS TO RECORDS

If, and to the extent that, Section 1861(v)(1)(I) of the Social Security Act (42 U.S.C. Section 1395x(v)(1)(I)) is applicable, Contractor agrees that for a period of five (5) years following the furnishing of services under this Agreement, Contractor shall maintain and make available, upon written request, to the Secretary of the United States Department of Health and Human Services or the Controller General of the United States, or to any of their authorize representatives, the Agreements, books, documents and records of Contractor which are necessary to verify the nature and extent of the costs of services provided hereunder. Furthermore, if Contractor carries out any of the services provided hereunder through any subcontract with a value or cost of Ten Thousand Dollars (\$10,000) or more over a twelve (12) month period with a related organization (as that term is defined under Federal law), Contractor agrees that each such subcontract shall provide for such access to the subcontract, books, documents and records of the subcontractor.

### 8.24 CONTRACTOR PERFORMANCE DURING CIVIL UNREST OR DISASTER

The Contractor recognizes that health care Facilities maintained by County provide care essential to the residents of the communities they serve, and that these services are of particular importance at the time of a riot, insurrection, civil unrest, natural disaster, or similar event. Notwithstanding any other provision of this Agreement, full performance by Contractor during any riot, insurrection, civil unrest, natural disaster or similar event is not excused if such performance remains physically possible. Failure to comply with this requirement shall be considered a material breach by Contractor for which County may immediately terminate this Agreement.

#### 8.25 GOVERNING LAW, JURISDICTION, AND VENUE

This Agreement shall be governed by, and construed in accordance with, the laws of the State of California. The Contractor agrees and consents to the exclusive jurisdiction of the courts of the State of California for all purposes regarding this Agreement and further agrees and consents that venue of any action brought hereunder shall be exclusively in the County of Los Angeles.

### 8.26 HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT (HIPAA)

8.26.1 Contractor expressly acknowledges and agrees that the provision of services under this Agreement does not require or permit access by Contractor or any of its officers, employees, or agents, to any patient medical records. Accordingly, Contractor shall instruct its

- officers, employees, and agents that they are not to pursue, or gain access to, patient medical records for any reason whatsoever.
- 8.26.2 Notwithstanding the forgoing, the parties acknowledge that in the course of the provision of services hereunder, Contractor or its officers, employees, and agents, may have inadvertent access to patient medical records. Contractor understands and agrees that neither it nor its officers, employees, or agents, are to take advantage of such access for any purpose whatsoever.
- 8.26.3 Additionally, in the event of such inadvertent access, Contractor and its officers, employees, and agents, shall maintain the confidentiality of any information obtained and shall notify Director that such access has been gained immediately, or upon the first reasonable opportunity to do so. In the event of any access, whether inadvertent or intentional, Contractor shall indemnify, defend, and hold harmless County, its officers, employees, and agents, from and against any and all liability, including but not limited to, actions, claims, costs, demands, expenses, and fees (including attorney and expert witness fees) arising from or connected with Contractor's or its officers', employees', or agents', access to patient medical records. Contractor agrees to provide appropriate training to its employees regarding their obligations as described hereinabove.

#### 8.27 INDEPENDENT CONTRACTOR STATUS

- 8.27.1 This Agreement is by and between the County and the Contractor and is not intended, and shall not be construed, to create the relationship of agent, servant, employee, partnership, joint venture, or association, as between the County and the Contractor. The employees and agents of one party shall not be, or be construed to be, the employees or agents of the other party for any purpose whatsoever.
- 8.27.2 The Contractor shall be solely liable and responsible for providing to, or on behalf of, all persons performing work pursuant to this Agreement all compensation and benefits. The County shall have no liability or responsibility for the payment of any salaries, wages, unemployment benefits, disability benefits, Federal, State, or local taxes, or other compensation, benefits, or taxes for any personnel provided by or on behalf of the Contractor.
- 8.27.3 The Contractor understands and agrees that all persons performing work pursuant to this Agreement are, for purposes of Workers' Compensation liability, solely employees of the

Contractor and not employees of the County. The Contractor shall be solely liable and responsible for furnishing any and all Workers' Compensation benefits to any person as a result of any injuries arising from or connected with any work performed by or on behalf of the Contractor pursuant to this Agreement.

8.27.4 The Contractor shall adhere to the provisions stated in sub-paragraph 7.6 - Confidentiality.

#### 8.28 INDEMNIFICATION

The Contractor shall indemnify, defend and hold harmless the County, its Special Districts, elected and appointed officers, employees, and agents from and against any and all liability, including but not limited to demands, claims, actions, fees, costs, and expenses (including attorney and expert witness fees), arising from or connected with the Contractor's acts and/or omissions arising from and/or relating to this Agreement.

#### 8.29 GENERAL PROVISIONS FOR ALL INSURANCE COVERAGE

Without limiting Contractor's indemnification of County, and in the performance of this Agreement and until all of its obligations pursuant to this Agreement have been met, Contractor shall provide and maintain at its own expense insurance coverage satisfying the requirements specified in Sections 8.29 and 8.30 of this Agreement. These minimum insurance coverage terms, types and limits (the "Required Insurance") also are in addition to and separate from any other Contractual obligation imposed upon Contractor pursuant to this Agreement. The County in no way warrants that the Required Insurance is sufficient to protect the Contractor for liabilities which may arise from or relate to this Agreement.

#### 8.29.1 Evidence of Coverage and Notice to County

- Certificate(s) of insurance coverage (Certificate) satisfactory to County, and a copy of an Additional Insured endorsement confirming County and its Agents (defined below) has been given Insured status under the Contractor's General Liability policy, shall be delivered to County at the address shown below and provided prior to commencing services under this Agreement.
- Renewal Certificates shall be provided to County not less than 10 days prior to Contractor's policy expiration dates.
   The County reserves the right to obtain complete, certified copies of any required Contractor and/or Sub-Contractor insurance policies at any time.

- Certificates shall identify all Required Insurance coverage types and limits specified herein, reference this Agreement by name or number, and be signed by an authorized representative of the insurer(s). The Insured party named on the Certificate shall match the name of the Contractor identified as the contracting party in this Agreement. Certificates shall provide the full name of each insurer providing coverage, its NAIC (National Association of Insurance Commissioners) identification number, its financial rating, the amounts of any policy deductibles or self-insured retentions exceeding fifty thousand (\$50,000.00) dollars, and list any County required endorsement forms.
- Neither the County's failure to obtain, nor the County's receipt of, or failure to object to a non-complying insurance certificate or endorsement, or any other insurance documentation or information provided by the Contractor, its insurance broker(s) and/or insurer(s), shall be construed as a waiver of any of the Required Insurance provisions.

Certificates and copies of any required endorsements shall be sent to:

County of Los Angeles
Department of Health Services
Contracts and Grants Division
313 N. Figueroa Street, 6E
Los Angeles, CA 90012
Attention: Kathy K. Hanks, Director
Contract Administration and Monitoring

### and

County of Los Angeles Department of Health Services Centralized Contract Monitoring Division 5555 Ferguson Drive, Suite 210 Commerce, CA 90022

Contractor also shall promptly report to County any injury or property damage accident or incident, including any injury to a Contractor employee occurring on County property, and any loss, disappearance, destruction, misuse, or theft of County property, monies or securities entrusted to Contractor. Contractor also shall promptly notify County of any third party claim or suit filed

against Contractor or any of its Sub-Contractors which arises from or relates to this Agreement, and could result in the filing of a claim or lawsuit against Contractor and/or County.

### 8.29.2 Additional Insured Status and Scope of Coverage

The County of Los Angeles, its Special Districts, Elected Officials, Officers, Agents, Employees and Volunteers (collectively County and its Agents) shall be provided additional insured status under Contractor's General Liability policy with respect to liability arising out of Contractor's ongoing and completed operations performed on behalf of the County. County and its Agents additional insured status shall apply with respect to liability and defense of suits arising out of the Contractor's acts or omissions, whether such liability is attributable to the Contractor or to the County. The full policy limits and scope of protection also shall apply to the County and its Agents as an additional insured, even if they exceed the County's minimum Required Insurance specifications herein. Use of an automatic additional insured endorsement form is acceptable providing it satisfies the Required Insurance provisions herein.

### 8.29.3 Cancellation of Insurance

Except in the case of cancellation for non-payment of premium, Contractor's insurance policies shall provide, and Certificates shall specify, that County shall receive not less than thirty (30) days advance written notice by mail of any cancellation of the Required Insurance. Ten (10) days prior notice may be given to County in event of cancellation for non-payment of premium.

### 8.29.4 Failure to Maintain Insurance

Contractor's failure to maintain or to provide acceptable evidence that it maintains the Required Insurance shall constitute a material breach of the Agreement, upon which County immediately may withhold payments due to Contractor, and/or suspend or terminate this Agreement. County, at its sole discretion, may obtain damages from Contractor resulting from said breach.

### 8.29.5 <u>Insurer Financial Ratings</u>

Coverage shall be placed with insurers acceptable to the County with A.M. Best ratings of not less than A:VII unless otherwise approved by County.

### 8.29.6 Contractor's Insurance Shall Be Primary

Contractor's insurance policies, with respect to any claims related to this Agreement, shall be primary with respect to all other sources of coverage available to Contractor. Any County maintained insurance or self-insurance coverage shall be in excess of and not contribute to any Contractor coverage.

### 8.29.7 Waivers of Subrogation

To the fullest extent permitted by law, the Contractor hereby waives its rights and its insurer(s)' rights of recovery against County under all the Required Insurance for any loss arising from or relating to this Agreement. The Contractor shall require its insurers to execute any waiver of subrogation endorsements which may be necessary to effect such waiver.

### 8.29.8 Sub-Contractor Insurance Coverage Requirements

Contractor shall include all Sub-Contractors as insureds under Contractor's own policies, or shall provide County with each Sub-Contractor's separate evidence of insurance coverage. Contractor shall be responsible for verifying each Sub-Contractor complies with the Required Insurance provisions herein, and shall require that each Sub-Contractor name the County and Contractor as additional insureds on the Sub-Contractor's General Liability policy. Contractor shall obtain County's prior review and approval of any Sub-Contractor request for modification of the Required Insurance.

### 8.29.9 Deductibles and Self-Insured Retentions (SIRs)

Contractor's policies shall not obligate the County to pay any portion of any Contractor deductible or SIR. The County retains the right to require Contractor to reduce or eliminate policy deductibles and SIRs as respects the County, or to provide a bond guaranteeing Contractor's payment of all deductibles and SIRs, including all related claims investigation, administration and defense expenses. Such bond shall be executed by a corporate surety licensed to transact business in the State of California.

### 8.29.10 Claims Made Coverage

If any part of the Required Insurance is written on a claims made basis, any policy retroactive date shall precede the effective date of this Agreement. Contractor understands and agrees it shall maintain such coverage for a period of not less than three (3) years following Agreement expiration, termination or cancellation.

### 8.29.11 Application of Excess Liability Coverage

Contractors may use a combination of primary, and excess insurance policies which provide coverage as broad as ("follow

form" over) the underlying primary policies, to satisfy the Required Insurance provisions.

### 8.29.12 Separation of Insureds

All liability policies shall provide cross-liability coverage as would be afforded by the standard ISO (Insurance Services Office, Inc.) separation of insureds provision with no insured versus insured exclusions or limitations.

### 8.29.13 Alternative Risk Financing Programs

The County reserves the right to review, and then approve, Contractor use of self-insurance, risk retention groups, risk purchasing groups, pooling arrangements and captive insurance to satisfy the Required Insurance provisions. The County and its Agents shall be designated as an Additional Covered Party under any approved program.

8.29.14 County Review and Approval of Insurance Requirements

The County reserves the right to review and adjust the Required
Insurance provisions, conditioned upon County's determination of
changes in risk exposures.

### 8.30 INSURANCE COVERAGE

8.30.1 Commercial General Liability insurance (providing scope of coverage equivalent to ISO policy form CG 00 01), naming County and its Agents as an additional insured, with limits of not less than:

General Aggregate: \$2 million
Products/Completed Operations Aggregate: \$1 million
Personal and Advertising Injury: \$1 million
Each Occurrence: \$1 million

- 8.30.2 Automobile Liability insurance (providing scope of coverage equivalent to ISO policy form CA 00 01) with limits of not less than \$1 million for bodily injury and property damage, in combined or equivalent split limits, for each single accident. Insurance shall cover liability arising out of Contractor's use of autos pursuant to this Agreement, including owned, leased, hired, and/or nonowned autos, as each may be applicable.
- 8.30.3 Workers Compensation and Employers' Liability insurance or qualified self-insurance satisfying statutory requirements, which includes Employers' Liability coverage with limits of not less than \$1 million per accident. If Contractor will provide leased

employees, or, is an employee leasing or temporary staffing firm or a professional employer organization (PEO), coverage also shall include an Alternate Employer Endorsement (providing scope of coverage equivalent to ISO policy form WC 00 03 01 A) naming the County as the Alternate Employer, and the endorsement form shall be modified to provide that County will receive not less than thirty (30) days advance written notice of cancellation of this coverage provision. If applicable to Contractor's operations, coverage also shall be arranged to satisfy the requirements of any federal workers or workmen's compensation law or any federal occupational disease law

### 8.31 LICENSES, PERMITS, REGISTRATIONS, AND CERTIFICATES

Contractor shall obtain and maintain in effect during the term of this Agreement, all valid licenses, permits, registrations, accreditations, and certificates required by law which are applicable to its performance of this Agreement, and shall ensure that all of its officers, employees, and agents who perform services hereunder obtain and maintain in effect during the term of this Agreement, all licenses, permits, registrations, accreditations, and certificates required by law which are applicable to their performance of services hereunder. All such licenses, permits, registrations, accreditations, and certifications relating to services hereunder shall be made available to County upon request.

### 8.32 LIQUIDATED DAMAGES

- 8.32.1 If, in the judgment of the Director, or his/her designee, the Contractor is deemed to be non-compliant with the terms and obligations assumed hereby, the Director, or his/her designee, at his/her option, in addition to, or in lieu of, other remedies provided herein, may withhold the entire monthly payment or deduct pro rata from the Contractor's invoice for work not performed. A description of the work not performed and the amount to be withheld or deducted from payments to the Contractor from the County, will be forwarded to the Contractor by the Director, or his/her designee, in a written notice describing the reasons for said action.
- 8.32.2 If the Director, or his/her designee, determines that there are deficiencies in the performance of this Agreement that the Director, or his/her designee, deems are correctable by the Contractor over a certain time span, the Director, or his/her designee, will provide a written notice to the Contractor to correct the deficiency within specified time frames. Should the Contractor fail to correct deficiencies within said time frame, the Director, or his/her designee, may: (a) Deduct from the Contractor's payment,

pro rata, those applicable portions of the Monthly Agreement Sum; and/or (b) Deduct liquidated damages. The parties agree that it will be impracticable or extremely difficult to fix the extent of actual damages resulting from the failure of the Contractor to correct a deficiency within the specified time frame. The parties hereby agree that under the current circumstances a reasonable estimate of such damages is One Hundred Dollars (\$100) per day per infraction, and that the Contractor shall be liable to the County for liquidated damages in said amount. Said amount shall be deducted from the County's payment to the Contractor; and/or (c) Upon giving five (5) days notice to the Contractor for failure to correct the deficiencies, the County may correct any and all deficiencies and the total costs incurred by the County for completion of the work by an alternate source, whether it be County forces or separate private Contractor, will be deducted and forfeited from the payment to the Contractor from the County. as determined by the County.

- 8.32.3 The action noted in sub-paragraph 8.32.2 shall not be construed as a penalty, but as adjustment of payment to the Contractor to recover the County cost due to the failure of the Contractor to complete or comply with the provisions of this Agreement.
- 8.32.4 This sub-paragraph shall not, in any manner, restrict or limit the County's right to damages for any breach of this Agreement provided by law or sub-paragraph 8.32.2, and shall not, in any manner, restrict or limit the County's right to terminate this Agreement as agreed to herein.

### 8.33 MOST FAVORED PUBLIC ENTITY - (Intentionally Omitted)

### 8.34 NON EXCLUSIVITY

Nothing herein is intended nor shall be construed as creating any exclusive arrangement with the Contractor. This Agreement shall not restrict the Department of Health Services from acquiring similar, equal or like goods and/or services from other entities or sources.

### 8.35 NOTICE OF DELAYS

Except as otherwise provided under this Agreement, when either party has knowledge that any actual or potential situation is delaying or threatens to delay the timely performance of this Agreement, that party shall, within one (1) business day, give notice thereof, including all relevant information with respect thereto, to the other party.

### 8.36 NOTICE OF DISPUTES

The Contractor shall bring to the attention of the Facility Contract Manager any dispute between the County and the Contractor regarding the performance of services as stated in this Agreement. If the Facility Contract Manager is not able to resolve the dispute, the Director or his/her designee shall resolve it.

### 8.37 NOTICE TO EMPLOYEES REGARDING THE FEDERAL EARNED INCOME CREDIT

The Contractor shall notify its employees, and shall require each subcontractor to notify its employees, that they may be eligible for the Federal Earned Income Credit under the federal income tax laws. Such notice shall be provided in accordance with the requirements set forth in Internal Revenue Service Notice No. 1015.

### 8.38 NOTICE TO EMPLOYEES REGARDING THE SAFELY SURRENDERED BABY LAW

The Contractor shall notify and provide to its employees, and shall require each subcontractor to notify and provide to its employees, a fact sheet regarding the Safely Surrendered Baby Law, its implementation in Los Angeles County, and where and how to safely surrender a baby. The fact sheet is set forth in Exhibit H of this Agreement and is also available on the Internet at <a href="https://www.babysafela.org">www.babysafela.org</a> for printing purposes.

### 8.39 NOTICES

- 8.39.1 All notices or demands required or permitted to be given or made under this Agreement shall be in writing and shall be hand delivered with signed receipt or mailed by first-class registered or certified mail, postage prepaid, addressed to the parties as identified in Exhibits C County's Administration and D Contractor's Administration. Addresses may be changed by either party giving ten (10) days' prior written notice thereof to the other party. The Director or his/her designee shall have the authority to issue all notices or demands required or permitted by the County under this Agreement.
- 8.39.2 Electronic Notice In addition, and in lieu of written notification, the Director, or his/her designee, shall have the authority to issue any notice to Contractor electronically via email at the designated email address as identified in Exhibit D Contractor's Administration. This includes all notices or demands required or permitted by the County under this Agreement.

### 8.40 PROHIBITION AGAINST INDUCEMENT OR PERSUASION

Notwithstanding the above, the Contractor and the County agree that, during the term of this Agreement and for a period of one year thereafter, neither party shall in any way intentionally induce or persuade any employee of one party to become an employee or agent of the other party. No bar exists against any hiring action initiated through a public announcement.

### 8.41 PUBLIC RECORDS ACT

- Any documents submitted by the Contractor; all information 8.41.1 obtained in connection with the County's right to audit and inspect the Contractor's documents, books, and accounting records pursuant to sub-paragraph 8.43 - Record Retention and Inspection/Audit Settlement of this Agreement; as well as those documents which were required to be submitted in response to the Request for Proposals (RFP) used in the solicitation process for this Agreement, become the exclusive property of the County. All such documents become a matter of public record and shall be regarded as public records. Exceptions will be those elements in the California Government Code Section 6250 et seg. (Public Records Act) and which are marked "trade secret", "confidential", or "proprietary". The County shall not in any way be liable or responsible for the disclosure of any such records including, without limitation, those so marked, if disclosure is required by law, or by an order issued by a court of competent jurisdiction.
- 8.41.2 In the event the County is required to defend an action on a Public Records Act request for any of the aforementioned documents, information, books, records, and/or contents of a proposal marked "trade secret", "confidential", or "proprietary", the Contractor agrees to defend and indemnify the County from all costs and expenses, including reasonable attorney's fees, in action or liability arising under the Public Records Act.

### 8.42 PUBLICITY

- 8.42.1 The Contractor shall not disclose any details in connection with this Agreement to any person or entity except as may be otherwise provided hereunder or required by law. However, in recognizing the Contractor's need to identify its services and related clients to sustain itself, the County shall not inhibit the Contractor from publishing its role under this Agreement within the following conditions:
  - The Contractor shall develop all publicity material in a professional manner; and

- During the term of this Agreement, the Contractor shall not, and shall not authorize another to, publish or disseminate any commercial advertisements, press releases, feature articles, or other materials using the name of the County without the prior written consent of the Facility Contract Director. The County shall not unreasonably withhold written consent.
- 8.42.2 The Contractor may, without the prior written consent of County, indicate in its proposals and sales materials that it has been awarded this Agreement with the County of Los Angeles, provided that the requirements of this sub-paragraph 8.42 shall apply.

### 8.43 RECORD RETENTION AND INSPECTION/AUDIT SETTLEMENT

- 8.43.1 The Contractor shall maintain, and provide upon request by County, accurate and complete financial records of its activities and operations relating to this Agreement in accordance with generally accepted accounting principles. The Contractor shall maintain accurate and complete financial records of its activities and operations relating to this Agreement in accordance with generally accepted accounting principles. The Contractor shall also maintain accurate and complete employment and other records relating to its performance of this Agreement.
- 8.43.2 The Contractor agrees that the County, or its authorized representatives, shall have access to and the right to examine. audit, excerpt, copy, or transcribe any pertinent transaction, activity, or record relating to this Agreement. All such material, including, but not limited to, all financial records, bank statements, cancelled checks or other proof of payment, timecards, signin/sign-out sheets and other time and employment records, and proprietary data and information, shall be kept and maintained by the Contractor and shall be made available to the County during the term of this Agreement and for a period of five (5) years thereafter unless the County's written permission is given to dispose of any such material prior to such time. All such material shall be maintained by the Contractor at a location in Los Angeles County, provided that if any such material is located outside Los Angeles County, then, at the County's option, the Contractor shall pay the County for travel, per diem, and other costs incurred by the County to examine, audit, excerpt, copy, or transcribe such material at such other location.
- 8.43.3 In the event that an audit of the Contractor is conducted specifically regarding this Agreement by any Federal or State auditor, or by any auditor or accountant employed by the Contractor or

otherwise, including audits conducted by the Medicare and Medi-Cal programs, or both, then the Contractor shall file a copy of each such audit report, including Statement of Auditing Standards No. 70 Type 2 Reports, with the County's Auditor-Controller within thirty (30) days of the Contractor's receipt thereof, unless otherwise provided by applicable Federal or State law or under this Agreement. Subject to applicable law, the County shall make a reasonable effort to maintain the confidentiality of such audit report(s).

- 8.43.4 Failure on the part of the Contractor to comply with any of the provisions of this sub-paragraph 8.43 shall constitute a material breach of this Agreement upon which the County may terminate or suspend this Agreement.
- 8.43.5 If, at any time during the term of this Agreement or within five (5) years after the expiration or termination of this Agreement, representatives of the County conduct an audit of the Contractor regarding the work performed under this Agreement, and if such audit finds that the County's dollar liability for any such work is less than payments made by the County to the Contractor, then the difference shall be either: a) repaid by the Contractor to the County by cash payment upon demand or b) at the sole option of the County's Auditor-Controller, deducted from any amounts due to the Contractor from the County, whether under this Agreement or otherwise. If such audit finds that the County's dollar liability for such work is more than the payments made by the County to the Contractor, then the difference shall be paid to the Contractor by the County by cash payment, provided that in no event shall the County's annual amount for this Agreement exceed the funds appropriated by the County for the purpose of this Agreement.

### 8.43.6 Audit/Compliance Review

In the event County representatives conduct an audit/ compliance review of Contractor, Contractor shall fully cooperate with County's representatives. Contractor shall allow County representatives access to all financial reports, and reports pertaining to this Agreement and shall allow photocopies to be made of these documents utilizing Contractor's photocopier, for which County shall reimburse Contractor its customary charge for record copying services, if requested. Director shall provide Contractor with at least ten (10) working days prior written notice of any audit/compliance review.

County may conduct a statistical audit/compliance review of all claims paid by County during a specified period. The sample shall be determined in accordance with generally accepted auditing standards. An exit conference shall be held following the performance of any such audit/ compliance review at which time the results shall be discussed with Contractor. Contractor shall be provided with a copy of any resultant written evaluation report(s).

Contractor shall have the opportunity to review County's findings for Contractor, and Contractor shall have thirty (30) calendar days after receipt of County's audit/compliance review results to provide documentation to the County representatives to resolve audit exceptions. If, at the end of the thirty (30) day period there remain audit exceptions which have not been resolved to the satisfaction of County's representatives, then the exception rate found in the audit or sample results shall be applied to the total County payments made to Contractor for all claims paid during the audit/ compliance review period to determine Contractor's liability to County.

### 8.44 RECYCLED BOND PAPER

Consistent with the Board of Supervisors' policy to reduce the amount of solid waste deposited at the County landfills, the Contractor agrees to use recycled-content paper to the maximum extent possible on this Agreement.

### 8.45 RESTRICTIONS ON LOBBYING

If any Federal funds are to be used to pay for Contractor's services under this Agreement, Contractor shall fully comply with all certification and disclosure requirements prescribed by Section 319 of Public Law 101-121 (31 United States Code Section 1352) and any implementing regulations, and shall ensure that each of its subcontractors receiving funds provided under this Agreement also fully complies with all such certification and disclosure requirements.

### 8.46 SUBCONTRACTING

- 8.46.1 The requirements of this Agreement may not be subcontracted by the Contractor without the advance approval of the County. Any attempt by the Contractor to subcontract without the prior consent of the County may be deemed a material breach of this Agreement.
- 8.46.2 If the Contractor desires to subcontract, the Contractor shall provide the following information promptly at the County's request:
  - A description of the work to be performed by the subcontractor;

- A draft copy of the proposed subcontract; and
- Other pertinent information and/or certifications requested by the County.
- 8.46.3 The Contractor shall indemnify and hold the County harmless with respect to the activities of each and every subcontractor in the same manner and to the same degree as if such subcontractor(s) were the Contractor employees.
- 8.46.4 The Contractor shall remain fully responsible for all performances required of it under this Agreement, including those that the Contractor has determined to subcontract, notwithstanding the County's approval of the Contractor's proposed subcontract.
- 8.46.5 The County's consent to subcontract shall not waive the County's right to prior and continuing approval of any and all personnel, including subcontractor employees, providing services under this Agreement. The Contractor is responsible to notify its subcontractors of this County right.
- 8.46.6 The Facility Contract Manager is authorized to act for and on behalf of the County with respect to approval of any subcontract and subcontractor employees. After approval of the subcontract by the County, Contractor shall forward a fully executed subcontract to the County for their files.
- 8.46.7 The Contractor shall be solely liable and responsible for all payments or other compensation to all subcontractors and their officers, employees, agents, and successors in interest arising through services performed hereunder, notwithstanding the County's consent to subcontract.
- 8.46.8 The Contractor shall obtain certificates of insurance, which establish that the subcontractor maintains all the programs of insurance required by the County from each approved subcontractor. The Contractor shall ensure delivery of all such documents to:

County of Los Angeles
Department of Health Services
Contracts and Grants Division
313 N. Figueroa Street, 6E
Los Angeles, CA 90012
Attention: Kathy K. Hanks, Director
Contract Administration and Monitoring

Before any subcontractor employee may perform any work hereunder.

### 8.47 TERMINATION FOR BREACH OF WARRANTY TO MAINTAIN COMPLIANCE WITH COUNTY'S CHILD SUPPORT COMPLIANCE PROGRAM

Failure of the Contractor to maintain compliance with the requirements set forth in sub-paragraph 8.16 - Contractor's Warranty of Adherence to County's Child Support Compliance Program, shall constitute default under this Agreement. Without limiting the rights and remedies available to the County under any other provision of this Agreement, failure of the Contractor to cure such default within ninety (90) calendar days of written notice shall be grounds upon which the County may terminate this Agreement pursuant to sub-paragraph 8.50 - Termination for Default and pursue debarment of the Contractor, pursuant to County Code Chapter 2.202.

### 8.48 TERMINATION FOR BREACH OF WARRANTY TO MAINTAIN COMPLIANCE WITH COUNTY'S DEFAULTED PROPERTY TAX REDUCTION PROGRAM

Failure of Contractor to maintain compliance with the requirements set forth in Sub-paragraph 8.17 - Contractor's Warranty of Compliance with County's Defaulted Property Tax Reduction Program shall constitute default under this Agreement. Without limiting the rights and remedies available to County under any other provision of this Agreement, failure of Contractor to cure such default within ten (10) days of notice shall be grounds upon which County may terminate this Agreement and/or pursue debarment of Contractor, pursuant to County Code Chapter 2.206.

### 8.49 TERMINATION FOR CONVENIENCE

- 8.49.1 This Agreement may be terminated, in whole or in part, from time to time, when such action is deemed by the County, in its sole discretion, to be in its best interest. Termination of work hereunder shall be effected by notice of termination to the Contractor specifying the extent to which performance of work is terminated and the date upon which such termination becomes effective. The date upon which such termination becomes effective shall be no less than ten (10) days after the notice is sent.
- 8.49.2 After receipt of a notice of termination and except as otherwise directed by the County, the Contractor shall:
  - Stop work under this Agreement on the date and to the extent

- specified in such notice, and
- Complete performance of such part of the work as shall not have been terminated by such notice.
- 8.49.3 All material including books, records, documents, or other evidence bearing on the costs and expenses of the Contractor under this Agreement shall be maintained by the Contractor in accordance with sub-paragraph 8.43, Record Retention and Inspection/Audit Settlement.

### 8.50 TERMINATION FOR DEFAULT

- 8.50.1 The County may, by written notice to the Contractor, terminate the whole or any part of this Agreement, if, in the judgment of Facility Contact Manager:
  - Contractor has materially breached this Agreement; or
  - Contractor fails to timely provide and/or satisfactorily perform any task, deliverable, service, or other work required either under this Agreement; or
  - Contractor fails to demonstrate a high probability of timely fulfillment of performance requirements under this Agreement, or of any obligations of this Agreement and in either case, fails to demonstrate convincing progress toward a cure within five (5) working days (or such longer period as the County may authorize in writing) after receipt of written notice from the County specifying such failure.
- 8.50.2 In the event that the County terminates this Agreement in whole or in part as provided in sub-paragraph 8.50.1, the County may procure, upon such terms and in such manner as the County may deem appropriate, goods and services similar to those so terminated. The Contractor shall be liable to the County for any and all excess costs incurred by the County, as determined by the County, for such similar goods and services. The Contractor shall continue the performance of this Agreement to the extent not terminated under the provisions of this sub-paragraph.
- 8.50.3 Except with respect to defaults of any subcontractor, the Contractor shall not be liable for any such excess costs of the type identified in sub-paragraph 8.50.2 if its failure to perform this Agreement arises out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are

not limited to: acts of God or of the public enemy, acts of the County in either its sovereign or Contractual capacity, acts of Federal or State governments in their sovereign capacities, fires. floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather; but in every case, the failure to perform must be beyond the control and without the fault or negligence of the Contractor. If the failure to perform is caused by the default of a subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor, and without the fault or negligence of either of them, the Contractor shall not be liable for any such excess costs for failure to perform, unless the goods or services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule. As used in this sub-paragraph, the term "subcontractor(s)" means subcontractor(s) at any tier.

- 8.50.4 If, after the County has given notice of termination under the provisions of this sub-paragraph 8.50, it is determined by the County that the Contractor was not in default under the provisions of this sub-paragraph 8.50, or that the default was excusable under the provisions of sub-paragraph 8.50.3, the rights and obligations of the parties shall be the same as if the notice of termination had been issued pursuant to sub-paragraph 8.49 Termination for Convenience.
- 8.50.5 The rights and remedies of the County provided in this subparagraph 8.50 shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Agreement.

### 8.51 TERMINATION FOR IMPROPER CONSIDERATION

8.51.1 The County may, by written notice to the Contractor, immediately terminate the right of the Contractor to proceed under this Agreement if it is found that consideration, in any form, was offered or given by the Contractor, either directly or through an intermediary, to any County officer, employee, or agent with the intent of securing this Agreement or securing favorable treatment with respect to the award, amendment, or extension of this Agreement or the making of any determinations with respect to the Contractor's performance pursuant to this Agreement. In the event of such termination, the County shall be entitled to pursue the same remedies against the Contractor as it could pursue in the event of default by the Contractor.

- 8.51.2 The Contractor shall immediately report any attempt by a County officer or employee to solicit such improper consideration. The report shall be made either to the County manager charged with the supervision of the employee or to the County Auditor-Controller's Employee Fraud Hotline at (800) 544-6861.
- 8.51.3 Among other items, such improper consideration may take the form of cash, discounts, service, the provision of travel or entertainment, or tangible gifts.

### 8.52 TERMINATION FOR INSOLVENCY

- 8.52.1 The County may terminate this Agreement forthwith in the event of the occurrence of any of the following:
  - Insolvency of the Contractor. The Contractor shall be deemed to be insolvent if it has ceased to pay its debts for at least sixty (60) days in the ordinary course of business or cannot pay its debts as they become due, whether or not a petition has been filed under the Federal Bankruptcy Code and whether or not the Contractor is insolvent within the meaning of the Federal Bankruptcy Code;
  - The filing of a voluntary or involuntary petition regarding the Contractor under the Federal Bankruptcy Code;
  - The appointment of a Receiver or Trustee for the Contractor; or
  - The execution by the Contractor of a general assignment for the benefit of creditors.
- 8.52.2 The rights and remedies of the County provided in this subparagraph 8.52 shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Agreement.

### 8.53 TERMINATION FOR NON-ADHERENCE OF COUNTY LOBBYIST ORDINANCE

The Contractor, and each County Lobbyist or County Lobbying firm as defined in County Code Section 2.160.010 retained by the Contractor, shall fully comply with the County's Lobbyist Ordinance, County Code Chapter 2.160. Failure on the part of the Contractor or any County Lobbyist or County Lobbying firm retained by the Contractor to fully comply with the County's Lobbyist Ordinance shall constitute a material breach of this Agreement, upon which the County may in its sole discretion, immediately terminate or suspend this Agreement.

### 8.54 TERMINATION FOR NON-APPROPRIATION OF FUNDS

Notwithstanding any other provision of this Agreement, the County shall not be obligated for the Contractor's performance hereunder or by any provision of this Agreement during any of the County's future fiscal years unless and until the County's Board of Supervisors appropriates funds for this Agreement in the County's Budget for each such future fiscal year. In the event that funds are not appropriated for this Agreement, then this Agreement shall terminate as of June 30 of the last fiscal year for which funds were appropriated. The County shall notify the Contractor in writing of any such non-allocation of funds at the earliest possible date.

### 8.55 UNLAWFUL SOLICITATION

Contractor shall inform all of its officers and employees performing services hereunder of the provisions of Article 9 of Chapter 4 of Division 3 (commencing with section 6150) of Business and Professions Code of the State of California (i.e., State Bar Act provisions regarding unlawful solicitation as a runner or capper for attorneys) and shall take positive and affirmative steps in its performance hereunder to ensure that there is no violation of said provisions by its officers and employees. Contractor agrees that if a patient requests assistance in obtaining the services of any attorney, it will refer the patient to the attorney referral service of all those bar associations within Los Angeles County that have such a service.

### 8.56 VALIDITY

If any provision of this Agreement or the application thereof to any person or circumstance is held invalid, the remainder of this Agreement and the application of such provision to other persons or circumstances shall not be affected thereby.

### 8.57 WAIVER

No waiver by the County of any breach of any provision of this Agreement shall constitute a waiver of any other breach or of such provision. Failure of the County to enforce at any time, or from time to time, any provision of this Agreement shall not be construed as a waiver thereof. The rights and remedies set forth in this sub-paragraph 8.55 shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Agreement.

### 8.58 WARRANTY AGAINST CONTINGENT FEES

8.58.1 The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon any agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business.

8.58.2 For breach of this warranty, the County shall have the right to terminate this Agreement and, at its sole discretion, deduct from the Agreement price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

### 9.0 UNIQUE TERMS AND CONDITIONS

9.1 NO INTENT TO CREATE A THIRD PARTY BENEFICIARY CONTRACT
Notwithstanding any other provision of this Agreement, the parties do not
in any way intend that any person shall acquire any rights as a third party
beneficiary of this Agreement.

IN WITNESS WHEREOF, the Board of Supervisors of the County of Los Angeles has caused this Agreement to be subscribed by its Director of Health Services and Contractor has caused this Agreement to be subscribed in its behalf by its duly authorized officer, the day, month, and year first above written.

### **COUNTY OF LOS ANGELES**

By	
,	Schunhoff, Ph.D.
Interim	Director
	CORPORATION DBA SWISSLOG SOLUTIONS
C	Contractor
S	Signature
Ву	
F	Printed Name
Title	
(,	AFFIX CORPORATE SEAL)

APPROVED AS TO FORM
BY THE OFFICE OF THE COUNTY COUNSEL

RF:r

Board letter equipment maintenance agreement swisslog 09.10.10

### EQUIPMENT MAINTENANCE AND SUPPORT SERVICES FOR AUTOMATED GUIDED VEHICLE SYSTEM AT LAC+USC MEDICAL CENTER

### **EXHIBITS - TABLE OF CONTENTS**

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### STATEMENT OF WORK

**COUNTY OF LOS ANGELES** 

**AND** 

TRANSLOGIC CORPORATION
DBA
SWISSLOG HEALTHCARE SOLUTIONS

FOR

EQUIPMENT MAINTENANCE AND SUPPORT SERVICES FOR

**AUTOMATED GUIDED VEHICLE SYSTEM** 

ΑT

LAC+USC MEDICAL CENTER

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### STATEMENT OF WORK (SOW)

### 1.0 SCOPE OF WORK

Contractor shall maintain and service, to include but not limited to inspection, adjustment, and lubrication, all according to Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual for the AGVS equipment listed on Exhibit B - Pricing Schedule, Cost of Out-of-Scope Services and Equipment List. Contractor shall keep the equipment in good working order and shall comply with all appropriate licensing and accrediting agencies [e.g., The Joint Commission, Occupational Safety and Health Administration ("OSHA") standards, as applicable.

### 2.0 REQUIRED SERVICES

### 2.1 Required Services

Contractor's services shall include, but not be limited to, the following:

### A. <u>Preventive Maintenance</u>

 Year 1 – Date of Board approval through September 30, 2011

Contractor's Field Service Engineer shall be onsite three (3) days per week [Monday, Wednesday, and Friday – eight (8) hours per day], fifty-two (52) weeks per year for the purpose of inspection, adjustment, and lubrication on all AGVS equipment. The labor necessary to replace worn or defective parts during the scheduled maintenance is included. Service will be performed as described and recommended in accordance with Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual for the County's equipment.

### 2. Year 2 - October 1, 2011 through September 30, 2012

Contractor's Field Service Engineer shall be onsite two (2) days per week - eight (8) hours per day, to be determined by County forty-five (45) days prior to October 1, 2011, fifty-two

(52) weeks per year for the purpose of inspection, adjustment, and lubrication on all AGVS equipment. The labor necessary to replace worn or defective parts during the scheduled maintenance is included. Service will be performed as described and recommended in accordance with Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual for the County's equipment.

### 3. Year 3 - October 1, 2012 through September 30, 2013

Contractor's Field Service Engineer shall be onsite two (2) days per week – eight (8) hours per day, to be determined by County forty-five (45) days prior to October 1, 2012, for the purpose of inspection, adjustment, and lubrication on all AGVS equipment. The labor necessary to replace worn or defective parts during the scheduled maintenance is included. Service will be performed as described and recommended in accordance with Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual for the County's equipment.

### 4. As-Needed Repair Services

Contractor shall perform as-needed repair services within twenty-four (24) hours after notification by the Facility(s), Monday through Friday between the hours of 8:00 A.M. through 5:00 P.M., excluding County Holidays, at no additional cost to County.

If such services commence prior to 5:00 P.M., Monday through Friday, but extend beyond 5:00 P.M., no additional service charges beyond the rates set forth in Exhibit B – Pricing Schedule, Cost of Out-of-Scope Services and Equipment List are to be incurred by County for work performed by Contractor after 5:00 P.M.

### 5. Hardware and Software

Contractor shall provide, whenever available or required, software support, which includes, applicable hardware/software corrections/fixes/updates/service pack

upgrades, and remote configuration (reprograms). This excludes product and software enhancements.

### B. <u>Emergency Repair Services</u>

- 1. When Contractor's Field Service Engineer is not onsite, County will request service by calling:
  - 800.396.9666

Contractor's Field Service Engineer will first attempt to correct the problem by the use of phone diagnostics with the County's appointed representative. County agrees to provide a representative who can perform system control center commands and other minor repairs to the system, upon the advice of the Contractor's Field Service Engineer. Contractor's phone support will include remote access capability into the system via high speed access/VPN communication. The County agrees to provide internet access to be connected to the system control center, and provide an additional voice telephone near the system control center.

2. Remote Diagnostic Services (RDS) for Anti-Virus and Critical Security Patches: Contractor shall provide remote system security support through Contractor's Technical Support Center (TSC), 24 hours a day, 365 days a year. To permit remote installation of anti-virus and critical security patches. County shall through best effort provide continuouslyconnected high-speed internet access via secure socket layer (SSL, Port 443). To make the said connection, Contractor shall use Exhibit K - County's Department of Health Services' (DHS) Policy No. 935.041 - "Remote Access for Outside Vendors" VPN solution. For secure remote access, in addition to RSA tokens, Contractor may use Bomgar as authorized by the County. If so desired, Contractor may purchase the application, SecureLink, as another means of connecting to the DHS network. Contractor shall ensure that all systems are maintained at the most current, stable, and tested update and patch levels. If County's system, connectivity, or personnel prevent

Contractor from attempting to perform remote installation of anti-virus updates and critical security patches, then Contractor shall not be obligated to (i) virus exposure, or (ii) any network risk such as loss of data or denial of service due to failure to install critical security patches.

All remote connections and related activities must be auditable and reviewed for appropriateness on a regular basis by the responsible County's system administrator(s) providing the authorized remote access software supports this. In these cases, remote connection audit logs must be retained for at least one year. Audit logs must contain (i) information of all individuals who remotely accessed the system, (ii) the time, activities performed, and duration of all individual remote access sessions, and (iii) all hosts/servers that were accessed. Audit logs must be provided to the County's IT Security and Compliance Division upon request or accessible via a portal.

If phone diagnostic efforts are not successful in returning the system to normal operation, Contractor will dispatch a Field Service Engineer to be on site within four (4) hours from the time the service request was acknowledged. If a service call is recorded after 8:00 P.M., a Contractor Field Service Engineer will be on site no later than 8:00 A.M. the next day.

This "on call after hours" service commits Contractor's Field Service Engineer to respond by phone within two (2) hours and to respond in person within four (4) hours, seven (7) days a week from 6:00 A.M. to 8:00 P.M. The cost of the actual service visit is not included and will be billed per the rates in Exhibit B – Pricing Schedule, Cost of Out-of-Scope Services and Equipment List, using Administrative Amendments as described in Section 8.12 to obtain reimbursement.

Repair and maintenance services provided by Contractor shall be made on Facility(s) grounds.

Replacement parts shall be new or equivalent to new parts. Replacement parts from normal wear and tear up to \$50,000

(Fifty Thousand Dollars) per contract year are included. Providing County's invoices are paid on-time, Contractor encourages County to maintain an adequate supply of normal replacement parts to facilitate quick repair and minimize system downtime. If included parts are used from County's inventory, they will be repaired or replenished to their original levels. AGV related parts used, which exceed the \$50,000 (Fifty Thousand Dollar) limitation, will be billed at prevailing rates, less Contractor's Preventive Maintenance Agreement 20% discount, if the invoice is paid within 30 days of receipt.

If Contractor is unable to procure necessary additional parts or resources within seventy-two (72) hours after repair to said equipment has begun, Contractor's Field Service Engineer shall indicate in writing an estimated timeframe for such repair. In any event, Contractor shall repair said equipment or have approved plan for repair of said equipment or provide County with temporary replacement equipment if available within seventy-two (72) hours after repair work on County-owned equipment has begun.

Repair shall include diagnosis and corrections of malfunctions and/or failure occurring to said equipment. With approval by Facility's Contract Manager or his designee, temporary repair procedures may be followed by County's personnel while Contractor is concurrently developing a permanent repair to said equipment.

### C. Parts and Labor

A 20% discount shall be applied to all replacement parts and service labor purchased outside the scope of this Agreement, subject to the County's account being current per Agreement Section 5.5, Invoices and Payments.

### D. Additional Services

1. Breakage and/or Loss

Contractor shall replace and/or repair (at the time of servicing) any equipment and/or parts thereof which suffer breakage, damage or loss at the time of servicing or repair, which is caused by the negligence or willful misconduct of Contractor, and to the extent thereof, at no additional cost to County.

### 2. Rework

Contractor shall rework improperly repaired equipment, correct any damage resulting there from, and supply all necessary parts and materials therefore at no additional cost to County. Service personnel shall also repair any defective parts purchased and installed by such service personnel and shall repair any damage to the equipment resulting from, and to the extent of, Contractor's negligence or willful misconduct, at no additional cost to County.

### E. <u>Comprehensive Equipment Inventory</u>

Within thirty (30) days of Agreement execution, Contractor shall develop and maintain, in association with appropriate Facility staff, a comprehensive equipment inventory listing at each Facility. The inventory shall encompass all equipment covered under this Agreement and shall provide such equipment list to each Facility(s) listed on Agreement. Such list shall include each piece of equipment's model number, serial number, and specific location (e.g. room number) at each Facility(s). Such listing shall also include the Los Angeles County Capital Asset Leasing or Los Angeles County number, where applicable. County and Contractor shall date and sign the Comprehensive Equipment Inventory listing. Disputes shall be resolved in accordance with Agreement Section 8.36: Notice of Disputes.

Annually thereafter, (i.e., by October 31, 2011, etc.) and throughout the term of the Agreement, Contractor shall collaborate with appropriate Facility staff, to maintain a comprehensive equipment inventory, and disputes shall be resolved in accordance with Agreement Section 8.36: Notice of Disputes.

### F. Exclusions

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Contractor is not financially responsible to provide the repair services above should any repair be required by causes other than ordinary use of the equipment, as determined the County. Such causes include, but are not limited to:

- Improper use, gross neglect, misplacement, air conditioner or humidity control malfunction or failure, Facility(s) electrical system malfunction or failure;
- Repair, maintenance, modification, relocation, or reinstallation by any other than Contractor-authorized personnel;
- Acts of God, fires, floods, war, acts of sabotage, riots, accidents, or other causes;
- In the event that excluded services are required by a Facility(s), such services shall be billed to County at the hourly rates described in Exhibit B – Pricing Schedule, Cost of Outof- Scope Services and Equipment List.

### 2.2 Out-of-Scope Services

- A. Prior to performing any out-of-scope services, the Contractor shall prepare and submit a written description of the work with an estimate of labor and materials. If the work exceeds the Contractor's estimate, the County Contract Manager or his/her designee must approve the excess cost. In any case, no out-of-scope service shall commence without written authorization.
- B. When a condition exists wherein there is imminent danger of injury to the public or damage to property, Contractor shall contact County's Contract Manager or his/her designee for approval before beginning the work. A written estimate shall be sent within seventy-two (72) hours for approval. Contractor shall submit an invoice to County's Contract Manager within five (5) working days after completion of the work.
- C. All out-of-scope services shall commence on the established specified date. Contractor shall proceed diligently to complete said work within the time allotted.

**D.** The County reserves the right to perform out-of-scope services itself or assign the work to another Contractor.

### 3.0 ADDITION/DELETION OF FACILITIES AND EQUIPMENT

The Director of Department of Health Services or his designee ("Director") may add and/or delete DHS Facility(s) and related equipment as necessary to provide patient care or to assure that Facility(s) operations are maintained. Such maintenance and repair services shall include but not be limited to, warranty expiration, emergency repairs and critical preventive maintenance. All changes must be made in accordance with sub-paragraph 8.1 Amendments of the Agreement.

### 4.0 QUALITY CONTROL

The Contractor shall establish and utilize a comprehensive Quality Control Plan to assure the County a consistently high level of service throughout the term of the Agreement. The Plan shall be submitted to the County Contract Monitor for review. The plan shall include, but may not be limited to the following:

### 4.1 County Observations

In addition to departmental contracting staff, other County personnel may observe performance, activities, and review documents relevant to this Agreement at any time during normal business hours. However, these personnel may not unreasonably interfere with the Contractor's performance.

### 4.2 Monitoring

A record of all inspections conducted on each equipment piece by the Contractor to ensure that Agreement requirements are being met, any corrective action taken, the time a problem was first identified, a clear description of the problem, and the time elapsed between identification and completed corrective action, shall be maintained in printed format, dated and signed by Contractor's Field Service Engineer, in the Facility's designated area, and provided to the County upon request.

### 5.0 **DEFINITIONS**

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### 5.1 Equipment

Any instrument, apparatus, machine, or other similar or related article, including all operating software, components, parts, accessories, replacements, and/or upgrades, which is intended for the functioning of the diagnosis, care, treatment, or monitoring of a Facility patient.

### 5.2 Preventive Maintenance Services

Services performed by Contractor to preserve the functionality and operational state of Equipment covered under the terms of this Agreement, at the rates and frequency set forth in Exhibit B – Pricing Schedule, Cost of Out-of-Scope Services and Equipment List.

### 5.3 Emergency

"Emergency" shall mean an Equipment failure causing a complete or partial operational shutdown of Facility's capacity to utilize such Equipment for which no immediate temporary alternative is available.

### 6.0 RESPONSIBILITIES

The County's and the Contractor's responsibilities are as follows:

### 6.1 COUNTY

### Personnel

County does not anticipate assigning County personnel or employees to assist Contractor on a full-time or even a part-time basis regarding services to be provided by Contractor pursuant to this Agreement. However, County personnel will be made available to Contractor at the discretion of Director to provide necessary input and assistance in order to answer questions and provide necessary liaisons between Contractor and County. In any event, County further will provide Contractor with an appropriate contact person at each work site location to be served under this Agreement (Exhibit C – County's Administration). The County will administer the Agreement according to Agreement Paragraph 6.0, Administration of Agreement-County.

### 6.2 CONTRACTOR

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### 6.2.1 Personnel

- A. Contractor's Field Service Engineer or Telephone Support Unit Representatives at telephone number: 800.396.9666 are the responsible parties to lead and coordinate Contractor's provision of services described hereunder. Contractor's Field Service Engineer or Telephone Support Unit shall be available at all reasonable times (Monday through Friday, 8:00 A.M. to 5:00 P.M.), excluding County holidays, to act as a central point of contact with County personnel.
- B. Contractor's Representative shall institute and maintain appropriate supervision of all persons providing services pursuant to this Agreement, listed on Exhibit D Contractor's Administration. Further, unless directed pursuant to this Agreement by Director to do otherwise, Contractor shall work independently on designated assignments in accordance with the Statement of Work duties contained hereunder.
- C. Contractor service personnel shall be appropriately licensed, certified, credentialed, or trained to perform the Preventive Maintenance and Repair Services hereunder.
- D. Contractor shall assume the sole responsibility for the timely completion of all activities assigned or to be performed hereunder.
- E. Contractor shall assign a sufficient number of employees to perform the required work.

### 6.2.2 Identification Badges and Dress Code

Contractor shall ensure their employees are appropriately identified as set forth in sub-paragraph 7.4 – Contractor's Staff Identification, of the Agreement.

Contractor shall supply its Dress Code to County for review and Contractor shall ensure their employees conform to policy.

### 6.2.3 Reports

Contractor shall prepare and maintain a written record of all services (service report) provided on all equipment at the Facility(s). Such service report(s) shall:

- (a) Include a record of maintenance in accordance with the manufacture's recommendations and provide such other information as required by the Facility(s) in order to meet all licensing, accrediting and regulatory agency requirements,
- (b) Clearly identify the equipment serviced by model number, serial number, Los Angeles County Capital Asset Leasing or Los Angeles County number (if available),
- (c) Include an itemization and description of services performed, including electrical checks and calibration reading,
- (d) List any parts installed,
- (e) Include the service date(s), and
- (f) Give the name of the Field Service Engineer who performed the service.

A copy of such service report shall be given to the Facility(s) at the time the service is performed. Such service reports are the property of County and shall remain on-site at each Facility(s).

### 6.2.4 Risk Management Program

Contractor shall comply with the Facility(s) Risk Management Program as described in Exhibit J – LAC+USC Healthcare Network Policy No. 302 – Risk Management Program.

### 6.2.5 Materials and Equipment

The purchase of all materials/equipment to provide the needed services in excess of \$50,000 per contract year is the responsibility

of the County. Contractor shall use materials and equipment that are safe for the environment and safe for use by the employee.

### 6.2.6 Training

- A. Contractor will conduct system management training at the County's site when, in the opinion of the Facility(s) and the Contractor, hardware or software changes make such training necessary. Training for product and software enhancement is not part of this Agreement and will be quoted separately by Contractor.
- B. Management shall be trained in their assigned tasks and in the safe handling of equipment. All equipment shall be checked for safety. All employees must wear safety and protective gear according to OSHA standards.
- C. During the term of the Agreement, Contractor and County shall collaborate on training the County employees to perform the equipment maintenance and repair of the AGVS equipment.

### 6.2.7 Contractor's Office

Contractor shall maintain an office with a telephone in the company's name where Contractor conducts business. The office shall be staffed during the hours of 8:00 A.M. to 5:00 P.M., Monday through Friday, by at least one employee who can respond to inquiries and complaints which may be received about the Contractor's performance of the Agreement. When the office is closed, an answering service shall be provided to receive calls. The Contractor shall answer calls received by the answering service within two (2) hours of receipt of the call.

### 7.0 WORK SCHEDULES

7.1 Contractor shall submit for review and approval a work schedule for each Facility(s) to the County Contract Manager. Said work schedules shall be set on an annual calendar identifying all the required on-going maintenance tasks and task frequencies. The schedules shall list the time frames by day of the week, morning, and afternoon the tasks will be performed.

7.2 Contractor shall submit revised schedules when actual performance differs substantially from planned performance. Said revisions shall be submitted to the County Contract Manager for review and approval within ten (10) working days prior to scheduled time for work.

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### FOR AUTOMATED GUIDED VEHICLE SYSTEM AT LAC+USC MEDICAL CENTER **EQUIPMENT MAINTENANCE AND SUPPORT SERVICES**

# PRICING SCHEDULE, COST OF OUT-OF-SCOPE SERVICES AND EQUIPMENT LIST

**EXHIBIT B** 

## PRICING SCHEDULE MONTHLY PREVENTIVE MAINTENANCE COST – LABOR AND PARTS <sup>1</sup>

PERIOD	SERVICE LEVEL	MONTHLY CHARGE WITH PROMPT PAYMENT DISCOUNT 2	MONINLY CHARGE WITHOUT PROMPT PAYMENT DISCOUNT	ANNUAL COST
Effective upon Board approval - September 30, 2011	Onsite, 3 days per week (Monday, Wednesday and Friday), 8 hours per day, 52 weeks per year.	\$10,962	\$13,703	\$157,057 ³
October 1, 2011 – September 30, 2013	Onsite, 2 days per week on days to be determined <sup>4</sup> , 8 hours per day, 52 weeks per year.	\$8,799	\$10,999	\$132,000

<sup>1</sup> Includes up to \$50,000 per contract year in replacement parts from normal wear and tear.

Parts exceeding \$50,000 in any contract year billed at Contractor prevailing rates less 20% discount, if invoice payment is current.

<sup>&</sup>lt;sup>2</sup> Prompt payment discount is defined as within thirty (30) days of invoice receipt.

<sup>&</sup>lt;sup>3</sup> Based on Board of Supervisors approval on October 19, 2010, the monthly charge for October 2010 is prorated to include six (6) days of service.

<sup>&</sup>lt;sup>4</sup> To be determined 45 days prior to October 1, 2011 for October 1, 2011 – September 30, 2012 contract year and 45 days prior to October 1, 2012 for October 1, 2012 - September 30, 2013 contract year.

## FOR AUTOMATED GUIDED VEHICLE SYSTEM AT LAC+USC MEDICAL CENTER **EQUIPMENT MAINTENANCE AND SUPPORT SERVICES**

# PRICING SCHEDULE, COST OF OUT-OF-SCOPE SERVICES AND EQUIPMENT LIST

**EXHIBIT B** 

## **EFFECTIVE DATE OF BOARD APPROVAL THROUGH SEPTEMBER 30, 2013** COST OF OUT-OF-SCOPE SERVICES

NO.	CATEGORY	RATE/HOUR	EXPLANATION
<del>-</del>	Labor	\$142.00 *	Monday – Friday (weekdays) from 8:30 AM – 5:00 PM. A three (3) hour minimum is billed.
2	Overtime	\$213.00 *	Outside the Monday – Friday (weekdays) and hours in No. 1 above and on Saturday. A three (3) hour minimum is billed.
ю.	Overtime	\$284.00 *	Sunday (12:01 AM - 12 midnight) and holidays. A three (3) hour minimum is billed.
4.	Mileage	At the then current rate established by the County of Los Angeles' Auditor – Controller.	Not to exceed one-hundred twenty (120) miles round-trip. The Contractor's 20% Preventative Maintenance Discount does not apply to the mileage category.

\*Hourly rates start when the Field Service Engineer is dispatched to service site and end when the Field Service Engineer leaves the service site.

## PRICING SCHEDULE, OUT-OF-SCOPE SERVICES AND EQUIPMENT LIST

NUMBER	DESCRIPTION	EQUIPMENT SERIAL NUMBER	LOCATION	SERVICE FREQUENCY
₹.	Automatic Guided Vehicle	31150	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
2.	Automatic Guided Vehicle	31151	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
က်	Automatic Guided Vehicle	31152	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
4	Automatic Guided Vehicle	31153	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
S	Automatic Guided Vehicle	31154	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
9.	Automatic Guided Vehicle	31155	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
7.	Automatic Guided Vehicle	31156	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
œ̈́	Automatic Guided Vehicle	31157	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
ල	Automatic Guided Vehicle	31158	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
10.	Automatic Guided Vehicle	31159	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual

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## PRICING SCHEDULE, OUT-OF-SCOPE SERVICES AND EQUIPMENT LIST

		EQUIPMENT		
NUMBER	DESCRIPTION	SERIAL	LOCATION	SERVICE FREQUENCY
11.	Automatic Guided Vehicle	31160	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar
12.	Automatic Guided Vehicle	31161	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar
13.	Automatic Guided Vehicle	31162	Service and repaired at 1Q210	LTC2 Operations and Maintenance Manual Per intervals in Exhibit I – Swisslog AGV Transcar
14.	Automatic Guided Vehicle	31163	Service and repaired at 1Q210	LTC2 Operations and Maintenance Manual Per intervals in Exhibit I – Swisslog AGV Transcar
!				LTC2 Operations and Maintenance Manual
15.	Automatic Guided Vehicle	31164	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
16.	Automatic Guided Vehicle	31165	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar ITC2 Operations and Maintenance Manual
17.	Automatic Guided Vehicle	31166	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar
18.	Automatic Guided Vehicle	31167	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar I TC2 Operations and Maintenance Manual
19.	Automatic Guided Vehicle	31168	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual

## PRICING SCHEDULE, OUT-OF-SCOPE SERVICES AND EQUIPMENT LIST

		HALINGE		
NUMBER	DESCRIPTION	SERIAL NUMBER	LOCATION	SERVICE FREQUENCY
20.	Automatic Guided Vehicle	31169	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
21.	Automatic Guided Vehicle	31170	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
22.	Automatic Guided Vehicle	31171	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
23.	Automatic Guided Vehicle	31172	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
24.	Automatic Guided Vehicle	31173	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
25.	Automatic Guided Vehicle	31174	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
26.	Automatic Guided Vehicle	31175	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
27.	Automatic Guided Vehicle	31176	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
28.	Automatic Guided Vehicle	31177	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
29.	Automatic Guided Vehicle	31178	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
30.	Automatic Guided Vehicle	31179	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual

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## PRICING SCHEDULE, OUT OF SCOPE SERVICES AND EQUIPMENT LIST

		EQUIPMENT		
NUMBER	DESCRIPTION	SERIAL NUMBER	LOCATION	SERVICE FREQUENCY
31.	Automatic Guided Vehicle	31180	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
32.	Automatic Guided Vehicle	31181	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
33.	Automatic Guided Vehicle	31182	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
34.	Automatic Guided Vehicle	31183	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
35.	Automatic Guided Vehicle	31184	Service and repaired at 1Q210	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
36.	Mico 2000 Charger	CU000 - 06MVKRVK	1Q210 - Inpatient Tower	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance
37.	Mico 2000 Charger	CU071 - 06MBMVVK	Service Dock - Inpatient Tower	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance
38.	Mico 2000 Charger	CU072 - 06MVEVVK	Service Dock - Inpatient Tower	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual
39.	Mico 2000 Charger	CU070 - 06MBMQVK	Service Dock - Inpatient Tower	Per intervals in Exhibit I – Swisslog AGV Transcar LTC2 Operations and Maintenance Manual

## PRICING SCHEDULE, OUT-OF-SCOPE SERVICES AND EQUIPMENT LIST

		FOLIPMENT		
NUMBER	DESCRIPTION	SERIAL	LOCATION	SERVICE FREQUENCY
		NUMBER		
40.	Mico 2000 Charger	CU042 -	Service Dock - Inpatient Tower	Per intervals in Exhibit I – Swisslog AGV Transcar
		06MBMZVK		LTC2 Operations and Maintenance Manual
41.	Mico 2000 Charger	CU041 -	Service Dock - Inpatient Tower	Per intervals in Exhibit I – Swisslog AGV Transcar
		06MBMRVK		LTC2 Operations and Maintenance Manual
42.	Mico 2000 Charger	CU040 -	Service Dock - Inpatient Tower	Per intervals in Exhibit I – Swisslog AGV Transcar
		06MVKEVK		LTC2 Operations and Maintenance Manual
43.	Mico 2000 Charger	CU043 -	Service Dock - Inpatient Tower	Per intervals in Exhibit I – Swisslog AGV Transcar
		06MBMTVK		LTC2 Operations and Maintenance Manual
44.	Mico 2000 Charger	CU044 -	Service Dock - Inpatient Tower	Per intervals in Exhibit I – Swisslog AGV Transcar
		06MBMBVK		LTC2 Operations and Maintenance Manual
45.	Mico 2000 Charger	CU001 -	1L260A - Inpatient Tower	Per intervals in Exhibit I – Swisslog AGV Transcar
		04MVQBVY		LTC2 Operations and Maintenance Manual
46.	Mico 2000 Charger	CU002 -	1L260A - Inpatient Tower	Per intervals in Exhibit I – Swisslog AGV Transcar
		04MVQEVY		LTC2 Operations and Maintenance Manual
47.	Mico 2000 Charger	CU131 -	1E361A - Diagnostic Treatment	Per intervals in Exhibit I – Swisslog AGV Transcar
		06MBMMVK	Building	LTC2 Operations and Maintenance Manual
48.	Mico 2000 Charger	CU130 -	1E361A - Diagnostic Treatment	Per intervals in Exhibit I – Swisslog AGV Transcar
		06MVKBVK	Building	LTC2 Operations and Maintenance Manual
49.	Mico 2000 Charger	CU160 -	1A460 - Clinic Tower	Per intervals in Exhibit I – Swisslog AGV Transcar
		06MBMKVK		LTC2 Operations and Maintenance Manual
20.	Mico 2000 Charger	CU161-	1A460 - Clinic Tower	Per intervals in Exhibit I – Swisslog AGV Transcar
		06MVKZVK		LTC2 Operations and Maintenance Manual

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## PRICING SCHEDULE, OUT OF SCOPE SERVICES AND EQUIPMENT LIST

NUMBER	DESCRIPTION	EQUIPMENT SERIAL	LOCATION	SERVICE FREQUENCY
		NUMBER		
51.	Mico 2000 Charger	CU162 -	1A460 - Clinic Tower	Per intervals in Exhibit I – Swisslog AGV Transcar
		06MBMAVK		LTC2 Operations and Maintenance Manual

RF:r Board letter equipment maintenance Swisslog exhibit b equipment list 09.09.10

## **EXHIBIT C**

## **COUNTY'S ADMINISTRATION**

## **FACILITY CONTRACT MANAGER**

Name: Gus Pizarro, Manager II, Facilities Operation

Address: LAC+USC Healthcare Network

1200 N. State St., GH Room 128

Los Angeles, CA 90012

**Telephone:** (323) 226-4358

**FAX:** (323) 226-3670

Email: gpizarro@dhs.lacounty.gov

## **FACILITY CONTRACT MONITOR**

Name: Michael Wisniewski

Address: LAC+USC Healthcare Network

1200 N. State St., GH Room 128

Los Angeles, CA 90012

**Telephone:** (323) 409-1408.

Email: mwisniewski@dhs.lacounty.gov

**EXHIBIT D** 

## **CONTRACTOR'S ADMINISTRATION**

## I. CONTRACTOR'S TELEPHONE SUPPORT UNIT

800.396.9666

## **HOURS OF OPERATION**

Monday through Friday, 6:30 a.m. to 5:00 p.m., excluding County holidays.

## II. CONTRACTOR'S REPRESENTATIVE

Name: Dennis McWherter

Address: 10825 East 47<sup>th</sup> Avenue

**Denver, CO 80239** 

**Phone:** (303) 373-7819

**Email:** dennis.mcwherter@swisslog.com

## III. CONTRACTOR'S AUTHORIZED OFFICIAL(S)

Name: Dennis McWherter

**Address:** 10825 East 47<sup>th</sup> Avenue

Denver, CO 80239

**Phone:** (303) 373-7819

**Email:** dennis.mcwherter@swisslog.com

## **CONTRACTOR'S EEO CERTIFICATION**

In ac			
In ac	ess		
	nal Revenue Service Employer Identification Number		
	GENERAL CERTIFICATION		
subsi or be	cordance with Section 4.32.010 of the Code of the County of Los lier, or vendor certifies and agrees that all persons employed by diaries, or holding companies are and will be treated equally by the cause of race, religion, ancestry, national origin, or sex and in commination laws of the United States of America and the State of Calif	such firm, le firm with compliance	its affiliates out regard to
	CONTRACTOR'S SPECIFIC CERTIFICATIONS		
1.	The Contractor has a written policy statement prohibiting discrimination in all phases of employment.	Yes □	No □
2.	The Contractor periodically conducts a self analysis or utilization analysis of its work force.	Yes □	No □
3.	The Contractor has a system for determining if its employment practices are discriminatory against protected groups.	Yes □	No □
4.	Where problem areas are identified in employment practices, the Contractor has a system for taking reasonable corrective action, to include establishment of goals or timetables.	Yes □	No □
Autho	orized Official's Printed Name and Title		
Λι <sub>ι</sub> th.	orized Official's Signature Date		

## **CONTRACTOR ACKNOWLEDGEMENT AND CONFIDENTIALITY AGREEMENT**

CONTRACTOR NAME	Contract No
GENERAL INFORMATION:	
The Contractor referenced above has entered into a contract with the Co County. The County requires the Corporation to sign this Contractor Acknow	
CONTRACTOR ACKNOWLEDGEMENT:	
Contractor understands and agrees that the Contractor employees, consult (Contractor's Staff) that will provide services in the above referenced agreement understands and agrees that Contractor's Staff must rely exclusively upon benefits payable by virtue of Contractor's Staff's performance of work under the contractor of the contract	eement are Contractor's sole responsibility. Contractor Contractor for payment of salary and any and all other
Contractor understands and agrees that Contractor's Staff are not employed whatsoever and that Contractor's Staff do not have and will not acquire Los Angeles by virtue of my performance of work under the above-referer Contractor's Staff will not acquire any rights or benefits from the County of person or entity and the County of Los Angeles.	any rights or benefits of any kind from the County of need contract. Contractor understands and agrees that
CONFIDENTIALITY AGREEMENT:	
Contractor and Contractor's Staff may be involved with work pertaining to se Contractor and Contractor's Staff may have access to confidential data and it services from the County. In addition, Contractor and Contractor's Staff may other vendors doing business with the County of Los Angeles. The County and information in its possession, especially data and information conc Contractor and Contractor's Staff understand that if they are involved in Contractor's Staff, will protect the confidentiality of such data and information Agreement as a condition of work to be provided by Contractor's Staff for the	information pertaining to persons and/or entities receiving y also have access to proprietary information supplied by has a legal obligation to protect all such confidential data perning health, criminal, and welfare recipient records. Sounty work, the County must ensure that Contractor and Consequently, Contractor must sign this Confidentiality
Contractor and Contractor's Staff hereby agrees that they will not divulg obtained while performing work pursuant to the above-referenced contract Contractor and Contractor's Staff agree to forward all requests for the release Manager.	ct between Contractor and the County of Los Angeles.
Contractor and Contractor's Staff agree to keep confidential all health, conformation pertaining to persons and/or entities receiving services from the documentation, Contractor proprietary information and all other original matcontractor's Staff under the above-referenced contract. Contractor and materials against disclosure to other than Contractor or County employees we Contractor's Staff agree that if proprietary information supplied by other Contractor and Contractor's Staff shall keep such information confidential.	County, design concepts, algorithms, programs, formats, terials produced, created, or provided to Contractor and Contractor's Staff agree to protect these confidential tho have a need to know the information. Contractor and
Contractor and Contractor's Staff agree to report any and all violations of thi by any other person of whom Contractor and Contractor's Staff become awa	is agreement by Contractor and Contractor's Staff and/or re.
Contractor and Contractor's Staff acknowledge that violation of this agreement and/or criminal action and that the County of Los Angeles may seek all possi	
SIGNATURE:	DATE:/
PRINTED NAME:	
POSITION:	

## Title 2 ADMINISTRATION Chapter 2.203.010 through 2.203.090 JURY SERVICE ORDINANCE

Page 1 of 3

## 2.203.010 Findings.

The board of supervisors makes the following findings. The county of Los Angeles allows its permanent, full-time employees unlimited jury service at their regular pay. Unfortunately, many businesses do not offer or are reducing or even eliminating compensation to employees who serve on juries. This creates a potential financial hardship for employees who do not receive their pay when called to jury service, and those employees often seek to be excused from having to serve. Although changes in the court rules make it more difficult to excuse a potential juror on grounds of financial hardship, potential jurors continue to be excused on this basis, especially from longer trials. This reduces the number of potential jurors and increases the burden on those employers, such as the county of Los Angeles, who pay their permanent, full-time employees while on juror duty. For these reasons, the county of Los Angeles has determined that it is appropriate to require that the businesses with which the county contracts possess reasonable jury service policies. (Ord. 2002-0015 § 1 (part), 2002)

## 2.203.020 Definitions.

The following definitions shall be applicable to this chapter:

- A. "Contractor" means a person, partnership, corporation or other entity which has a contract with the county or a subcontract with a county contractor and has received or will receive an aggregate sum of \$50,000 or more in any 12-month period under one or more such contracts or subcontracts.
- B. "Employee" means any California resident who is a full-time employee of a contractor under the laws of California.
- C. "Contract" means any agreement to provide goods to, or perform services for or on behalf of, the county but does not include:
  - 1. A contract where the board finds that special circumstances exist that justify a waiver of the requirements of this chapter; or
  - 2. A contract where federal or state law or a condition of a federal or state program mandates the use of a particular contractor; or
  - 3. A purchase made through a state or federal contract; or
  - 4. A monopoly purchase that is exclusive and proprietary to a specific manufacturer, distributor, or reseller, and must match and inter-member with existing supplies, equipment or systems maintained by the county pursuant to the Los Angeles County Purchasing Policy and Procedures Manual, Section P-3700 or a successor provision; or
  - 5. A revolving fund (petty cash) purchase pursuant to the Los Angeles County Fiscal Manual, Section 4.4.0 or a successor provision; or
  - 6. A purchase card purchase pursuant to the Los Angeles County Purchasing Policy and Procedures Manual, Section P-2810 or a successor provision; or
  - 7. A non-agreement purchase with a value of less than \$5,000 pursuant to the Los Angeles County Purchasing Policy and Procedures Manual, Section A-0300 or a successor provision: or

RF:r

## Title 2 ADMINISTRATION Chapter 2.203.010 through 2.203.090 JURY SERVICE ORDINANCE

Page 2 of 3

- 8. A bona fide emergency purchase pursuant to the Los Angeles County Purchasing Policy and Procedures Manual, Section PP-1100 or a successor provision.
- D. "Full time" means 40 hours or more worked per week, or a lesser number of hours if:
  - The lesser number is a recognized industry standard as determined by the chief administrative officer, or
  - 2. The contractor has a long-standing practice that defines the lesser number of hours as full time
- E. "County" means the county of Los Angeles or any public entities for which the board of supervisors is the governing body. (Ord. 2002-0040 § 1, 2002: Ord. 2002-0015 § 1 (part), 2002)

## 2.203.030 Applicability.

This chapter shall apply to contractors who enter into contracts that commence after July 11, 2002. This chapter shall also apply to contractors with existing contracts which are extended into option years that commence after July 11, 2002. Contracts that commence after May 28, 2002, but before July 11, 2002, shall be subject to the provisions of this chapter only if the solicitations for such contracts stated that the chapter would be applicable. (Ord. 2002-0040 § 2, 2002: Ord. 2002-0015 § 1 (part), 2002)

## 2.203.040 Contractor Jury Service Policy.

A contractor shall have and adhere to a written policy that provides that its employees shall receive from the contractor, on an annual basis, no less than five days of regular pay for actual jury service. The policy may provide that employees deposit any fees received for such jury service with the contractor or that the contractor deduct from the employees' regular pay the fees received for jury service. (Ord. 2002-0015 § 1 (part), 2002)

## 2.203.050 Other Provisions.

- A. Administration. The chief administrative officer shall be responsible for the administration of this chapter. The chief administrative officer may, with the advice of county counsel, issue interpretations of the provisions of this chapter and shall issue written instructions on the implementation and ongoing administration of this chapter. Such instructions may provide for the delegation of functions to other county departments.
- B. Compliance Certification. At the time of seeking a contract, a contractor shall certify to the county that it has and adheres to a policy consistent with this chapter or will have and adhere to such a policy prior to award of the contract. (Ord. 2002-0015 § 1 (part), 2002)

## 2.203.060 Enforcement and Remedies.

For a contractor's violation of any provision of this chapter, the county department head responsible for administering the contract may do one or more of the following:

1. Recommend to the board of supervisors the termination of the contract; and/or,

RF:r

Board letter equipment maintenance Swisslog exhibits a to k 09.09.10

## Title 2 ADMINISTRATION Chapter 2.203.010 through 2.203.090 JURY SERVICE ORDINANCE

Page 3 of 3

2. Pursuant to chapter 2.202, seek the debarment of the contractor. (Ord. 2002-0015 § 1 (part), 2002)

## 2.203.070. Exceptions.

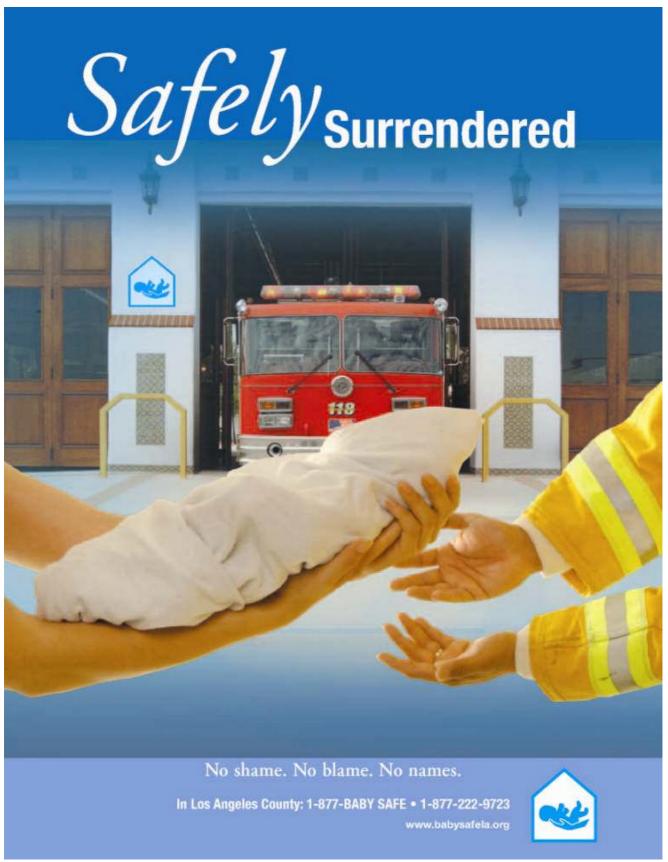
- A. Other Laws. This chapter shall not be interpreted or applied to any contractor or to any employee in a manner inconsistent with the laws of the United States or California.
- B. Collective Bargaining Agreements. This chapter shall be superseded by a collective bargaining agreement that expressly so provides.
- C. Small Business. This chapter shall not be applied to any contractor that meets all of the following:
  - 1. Has ten or fewer employees during the contract period; and,
  - 2. Has annual gross revenues in the preceding twelve months which, if added to the annual amount of the contract awarded, are less than \$500,000; and,
  - 3. Is not an affiliate or subsidiary of a business dominant in its field of operation.

"Dominant in its field of operation" means having more than ten employees and annual gross revenues in the preceding twelve months which, if added to the annual amount of the contract awarded, exceed \$500,000.

"Affiliate or subsidiary of a business dominant in its field of operation" means a business which is at least 20 percent owned by a business dominant in its field of operation, or by partners, officers, directors, majority stockholders, or their equivalent, of a business dominant in that field of operation. (Ord. 2002-0015 § 1 (part), 2002)

## 2.203.090. Severability.

If any provision of this chapter is found invalid by a court of competent jurisdiction, the remaining provisions shall remain in full force and effect. (Ord. 2002-0015 § 1 (part), 2002)



In Los Angeles County: 1 877 BABY SAFE 1 877 222 9723 www.babysafela.org

## Safely Surrendered Baby Law

## What is the Safely Surrendered Baby Law?

California's Safely Surrendered Baby Law allows parents or other persons, with lawful custody, which means anyone to whom the parent has given permission to confidentially surrender a baby. As long as the baby is three days (72 hours) of age or younger and has not been abused or neglected, the baby may be surrendered without fear of arrest or prosecution.

## How does it work?

A distressed parent who is unable or unwilling to care for a baby can legally, confidentially, and safely surrender a baby within three days (72 hours) of birth. The baby must be handed to an employee at a hospital or fire station in Los Angeles County. As long as the baby shows no sign of abuse or neglect, no name or other information is required. In case the parent changes his or her mind at a later date and wants the baby back, staff will use bracelets to help connect them to each other. One bracelet will be placed on the baby, and a matching bracelet will be given to the parent or other surrendering adult.

## What if a parent wants the baby back?

Parents who change their minds can begin the process of reclaiming their baby within 14 days. These parents should call the Los Angeles County Department of Children and Family Services at 1-800-540-4000.

## Can only a parent bring in the baby?

No. While in most cases a parent will bring in the baby, the Law allows other people to bring in the baby if they have lawful custody.

## Does the parent or surrendering adult have to call before bringing in the baby?

No. A parent or surrendering adult can bring in a baby anytime, 24 hours a day, 7 days a week, as long as the parent or surrendering adult surrenders the baby to someone who works at the hospital or fire station.

## Does the parent or surrendering adult have to tell anything to the people taking the baby?

No. However, hospital or fire station personnel will ask the surrendering party to fill out a questionnaire designed to gather important medical history information, which is very useful in caring for the baby. The questionnaire includes a stamped return envelope and can be sent in at a later time.

## What happens to the baby?

The baby will be examined and given medical treatment. Upon release from the hospital, social workers immediately place the baby in a safe and loving home and begin the adoption process.

## What happens to the parent or surrendering adult?

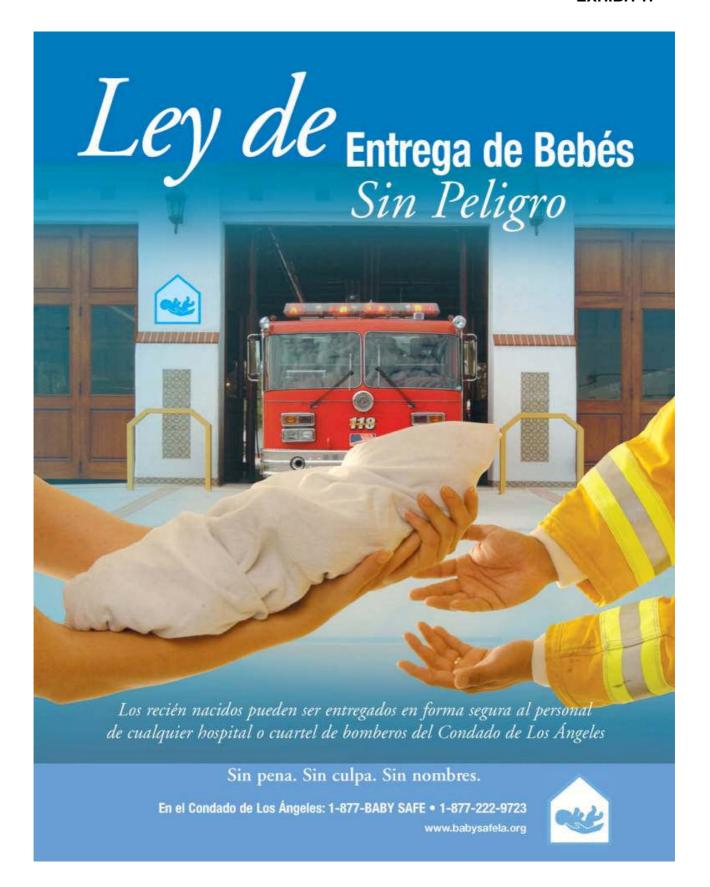
Once the parent or surrendering adult surrenders the baby to hospital or fire station personnel, they may leave at any time.

## Why is California doing this?

The purpose of the Safely Surrendered Baby Law is to protect babies from being abandoned, hurt or killed by their parents. You may have heard tragic stories of babies left in dumpsters or public bathrooms. Their parents may have been under severe emotional distress. The mothers may have hidden their pregnancies, fearful of what would happen if their families found out. Because they were afraid and had no one or nowhere to turn for help, they abandoned their babies. Abandoning a baby is illegal and places the baby in extreme danger. Too often, it results in the baby's death. The Safely Surrendered Baby Law prevents this tragedy from ever happening again in California.

## A baby's story

Early in the morning on April 9, 2005, a healthy baby boy was safely surrendered to nurses at Harbor-UCLA Medical Center. The woman who brought the baby to the hospital identified herself as the baby's aunt and stated the baby's mother had asked her to bring the baby to the hospital on her behalf. The aunt was given a bracelet with a number matching the anklet placed on the baby; this would provide some identification in the event the mother changed her mind about surrendering the baby and wished to reclaim the baby in the 14-day period allowed by the Law. The aunt was also provided with a medical questionnaire and said she would have the mother complete and mail back in the stamped return envelope provided. The baby was examined by medical staff and pronounced healthy and full-term. He was placed with a loving family that had been approved to adopt him by the Department of Children and Family Services.



En el Condado de Los Ángeles: 1-877-BABY SAFE • 1-877-222-9723

www.babysafela.org

## Ley de Entrega de Bebés Sin Peligro

## ¿Qué es la Ley de Entrega de Bebés sin Peligro?

La Ley de Entrega de Bebés sin
Peligro de California permite la
entrega confidencial de un recién
nacido por parte de sus padres u
otras personas con custodia legal,
es decir cualquier persona a quien
los padres le hayan dado permiso.
Siempre que el bebé tenga tres
días (72 horas) de vida o menos, y
no haya sufrido abuso ni
negligencia, pueden entregar al
recién nacido sin temor de ser
arrestados o procesados.

Cada recién nacido se merece la oportunidad de tener una vida saludable. Si alguien que usted conoce está pensando en abandonar a un recién nacido, infórmele que tiene otras opciones. Hasta tres días (72 horas) después del nacimiento, se puede entregar un recién nacido al personal de cualquier hospital o cuartel de bomberos del condado de Los Angeles.

## ¿Cómo funciona?

El padre/madre con dificultades que no pueda o no quiera cuidar de su recién nacido puede entregarlo en forma legal, confidencial y segura dentro de los tres días (72 horas) del nacimiento. El bebé debe ser entregado a un empleado de cualquier hospital o cuartel de bomberos del Condado de Los Ángeles. Siempre que el bebé no presente signos de abuso o negligencia, no será necesario suministrar nombres ni información alguna. Si el padre/madre cambia de opinión posteriormente y desea recuperar a su bebé, los trabajadores utilizarán brazaletes para poder vincularlos. El bebé llevará un brazalete v el padre/madre o el adulto que lo entregue recibirá un brazalete igual.

## ¿Qué pasa si el padre/madre desea recuperar a su bebé?

Los padres que cambien de opinión pueden comenzar el proceso de reclamar a su recién nacido dentro de los 14 días. Estos padres deberán llamar al Departamento de Servicios para Niños y Familias (Department of Children and Family Services) del Condado de Los Ángeles al 1-800-540-4000.

## ¿Sólo los padres podrán llevar al recién nacido?

No. Si bien en la mayoría de los casos son los padres los que llevan al bebé, la ley permite que otras personas lo hagan si tienen custodia legal.

## ¿Los padres o el adulto que entrega al bebé deben llamar antes de llevar al bebé?

No. El padre/madre o adulto puede llevar al bebé en cualquier momento, las 24 horas del día, los 7 días de la semana, siempre y cuando entreguen a su bebé a un empleado del hospital o cuartel de bomberos.

## ¿Es necesario que el padre/ madre o adulto diga algo a las personas que reciben al bebé?

No. Sin embargo, el personal del hospital o cuartel de bomberos le pedirá a la persona que entregue al bebé que llene un cuestionario con la finalidad de recabar antecedentes médicos importantes, que resultan de gran utilidad para cuidar bien del bebé. El cuestionario incluye un sobre con el sello postal pagado para enviarlo en otro momento.

## ¿Qué pasará con el bebé?

El bebé será examinado y le brindarán atención médica. Cuando le den el alta del hospital, los trabajadores sociales inmediatamente ubicarán al bebé en un hogar seguro donde estará bien atendido, y se comenzará el proceso de adopción.

## ¿Qué pasará con el padre/madre o adulto que entregue al bebé?

Una vez que los padres o adulto hayan entregado al bebé al personal del hospital o cuartel de bomberos, pueden irse en cualquier momento.

## ¿Por qué se está haciendo esto en California? ?

La finalidad de la Ley de Entrega de Bebés sin Peligro es proteger a los bebés para que no sean abandonados, lastimados o muertos por sus padres. Usted probablemente haya escuchado historias trágicas sobre bebés abandonados en basureros o en baños públicos. Los padres de esos bebés probablemente hayan estado pasando por dificultades emocionales graves. Las madres pueden haber ocultado su embarazo, por temor a lo que pasaría si sus familias se enteraran. Abandonaron a sus bebés porque tenían miedo y no tenían nadie a quien pedir ayuda. El abandono de un recién nacido es ilegal y pone al bebé en una situación de peligro extremo. Muy a menudo el abandono provoca la muerte del bebé. La Ley de Entrega de Bebés sin Peligro impide que vuelva a suceder esta tragedia en California.

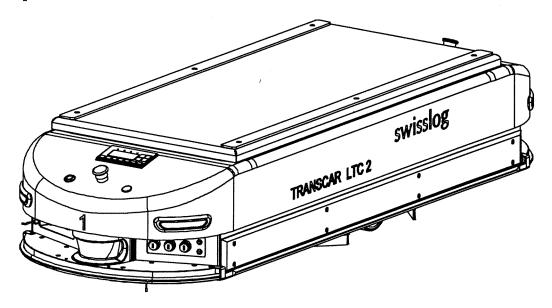
## Historia de un bebé

A la mañana temprano del día 9 de abril de 2005, se entregó un recién nacido saludable a las enfermeras del Harbor-UCLA Medical Center. La mujer que llevó el recién nacido al hospital se dio a conocer como la tía del bebé, y dijo que la madre le había pedido que llevara al bebé al hospital en su nombre. Le entregaron a la tía un brazalete con un número que coincidía con la pulsera del bebé; esto serviría como identificación en caso de que la madre cambiara de opinión con respecto a la entrega del bebé y decidiera recuperarlo dentro del período de 14 días que permite esta ley. También le dieron a la tía un cuestionario médico, y ella dijo que la madre lo llenaría y lo enviaría de vuelta dentro del sobre con franqueo pagado que le habían dado. El personal médico examinó al bebé y se determinó que estaba saludable y a término. El bebé fue ubicado con una buena familia que ya había sido aprobada para adoptarlo por el Departamento de Servicios para Niños y Familias.

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## **AGV Transcar LTC2**

## **Operations and Maintenance Manual**



## Automated Guided Vehicle PN 94180301 Rev. A

Doc. No. 50007601 Rev. A

August 2004

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## Declaration of Conformity

The unit shall only consist of components that are included in the system description and specifications by Swisslog.

Do not make any unapproved modifications to the vehicle. When the vehicle is operated, the safety instructions in this manual must adhered to at all times.

EC Manufacturer's Declaration according to Appendix II B, EC Machine Directive (89/392/EEC), EUmachinery directive EG (98/37/EG), EU-low voltage directive (73/23/EWG), and electromagnetic directive (89/336/EWG).

The manufacturing company Swisslog, Siemensstrasse 1, D-82178 Puchheim, Germany herewith declares that the vehicle:

- ▶ Transcar LTC2
- Nickel cadmium (NiCd) or lead (Pb) battery
- ► Serial number: 63100 (NiCd) and 62900 (Pb)

is not a complete machine in accordance with the EC Machine Directive. It therefore does not conform to all requirements of the said directive

Applied harmonized standards:

- ► EN 292-1 and 2
- ► EN 294
- ► EN 349
- ► EN 60204-1
- ► EN 60950

Applied national standards and technical specifications:

➤ Safety Standard EN 1525



## **CE-Declaration**

## **Declaration of Manufacturer**

Acc. to the EC Machine Guide Lines 98/37/EG, Appendix II B

ļ.	_/C No.: 88026 / 504 / 098AF	
We, herewith declare that:	TELELIFT GmbH Siemensstraße 1, 82178 Puchheim	
the machine/part of the machine/components of machine, as specified in the following, is manufactured in its concept and design, as well as in the construction as delivered, fulfils all relevant basic safety and health requirements of the EC guide lines.  Any alteration of the machine which has not been approved by us invalidates this declaration.		
Name of Machine/ Part of Machine/ : Components of Machine:	Transcar LTC 2	
Type of Machine:	Transcar LTC 2 - NiCd	
Serial-No.:	63100	
Corresponding EC guide lines for machines: EC machine guide line (98/37/EC) EC low voltage guide line (73/23/EC) Electromagnetic compatibility (89/336/EC)		
Applied harmonised norms In particular: EN 292-1 u. 2, EN 294, EN 1525, EN 50081, EN 60204-1		
Applied national norms and technical specifications Betriebssicherheitsverordnung		
Date/Signature of Manufacturer30.06.2003		
Statement to the person of the	undersigned	
Pall	Dy Fottner	
(Managing Director)	(Manager/Technology Center)	
Archive	63 00 Commission Number – Serial Number	



8/2004

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## 1 +

## Safety Guidelines

## **General Safety Instructions**

Proper functioning and operational safety of the vehicle can only be guaranteed if the safety instructions relating to the operation, maintenance, and repair of the vehicle are adhered to at all times. The system is also equipped with warning signs and symbols indicating potential risks.

- ► Ensure that no persons are located within the danger area of the vehicle. See "Potentially Dangerous Areas" on page 1.
- ► Always ensure proper maintenance and repair of all devices used in connection with the vehicle. See "Maintenance" on page 45.
- ► If the vehicle's behavior deviates from the expected normal behavior, or if injury to persons could occur, immediately press the Emergency Stop button and notify a safety specialist. See "Activating Manual, Operator, and Diagnostic modes" on page 27.
- ▶ During operation, never reach between moving parts; there is a risk of injury (crushing, cuts, and abrasions).

## **Vehicle Safety Instructions**

The following safety instructions are crucial to safe operation of the vehicle.

## Potentially Dangerous Areas

All areas where there is less than 0.5 m (1.6 ft.) between the vehicle and a solid obstacle are deemed potentially dangerous areas (risk of injury from crushing or swerving). In traffic areas, all people and movable objects need to maintain a distance of 1.5 m (4.8 ft) to reduce the risk of collision. The safety devices incorporated into the vehicle minimize these risks. Always maintain a safe distance between yourself and the moving vehicle, especially near loading and recharging stations.

During the recharging of the batteries at the charging station, there may be extremely high currents (loading current up to 100A). Do not touch the vehicle while the battery is charging at a charging station as there is a risk of shock.

## Vehicle Malfunction

The operation and the safety devices of the vehicle are based on generally recognized safety standards. If the vehicle is operated and maintained according to the instructions in this manual,

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risks to persons and property can be virtually excluded. However if it appears that the vehicle safety devices have been compromised, the vehicle must be immediately shut down and repaired. See "Vehicle Devices (Safety and Operation)" on page 9.

Signs of impaired safety devices include visible defects to the vehicle and malfunctions. In cases such as these, shut down the vehicle, and attach "out of order" signs until repairs are complete.

The vehicle may only be repaired by personnel that have been specifically authorized by Swisslog to do so. Do not restart the vehicle until the cause for the defect or malfunction has been eliminated.

## Floor Conditions

For the safe operation of the vehicle, ensure that the floor specifications and operating conditions are met. The vehicle should not be operated on recently brushed, wet, or dirty floors. Such floor conditions lead to longer braking distances. See "Operating Conditions" on page 137 and "Floor Specifications" on page 137.

## Staff Qualification

All persons who have been instructed in the operation of the unit and who are familiar with its control are deemed qualified personnel. It is the responsibility of the operator to ensure that all qualified personnel have read and fully understood the operating manual. The operator must also ensure that all responsibilities in connection with the unit are properly assigned. Unclear responsibilities can jeopardize safety.

## Proper Use

The vehicle is designed for the automated transport of authorized containers within a defined area. Any other use is specifically prohibited.

## Signs and Symbols

The following signs are used to highlight safety instructions and warnings.

## Signs and Symbols in this Guide

The signs and symbols in this User Guide and help identify situations that may be harmful or helpful, see Table 1.1.

Table 1.1: Guide Warning Signs and Symbols

Symbol	Meaning
<b>⚠</b> WARNING	Warning: an injury from physical or mechanical movement could occur. A risk to persons is present.
<b>A M</b> WARNING	Electrical Shock: an injury from electrical shock or malfunction could occur. A risk to persons is present.

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Table 1.1 : Guide Warning Signs and Symbols

Symbol	Meaning
CAUTION	Caution: to avoid damage to property, the activity needs to be carried out with the greatest possible care.
△ NOTE	Note: A hint, tip, or other useful information.

## 2

## Overview of Vehicle

## Introduction

The Automated Guided Vehicle (AGV) Transcar LTC2 is used to transport goods in authorized containers.

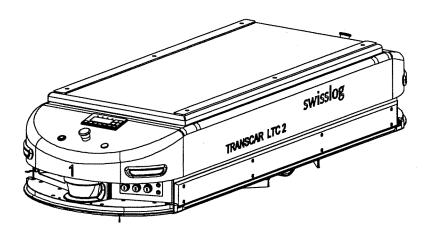


Figure 2.1: Transcar LTC2 Automated Guided Vehicle

## CAUTION

The operating manual must be accessible to all persons who work with or in connection with the vehicles.

Please read and understand this manual, especially "Safety Guidelines" on page 1 before operating the vehicles or system. Always adhere to the safety instructions in this document.

## $\triangle$ note

Illustrations are provided throughout this manual to aid in locating various components. The drawings are provided in the European standard according to ISO 128. See "Illustrations Overview" on page 98.

## Commissioning

The system must be commissioned by technicians authorized by Swisslog. Only qualified personnel may switch the unit on and off. (For more information on qualified personnel, see "Staff Qualification" on page 2.) The system must at all times be operated according to the instructions in this manual.

#### $\triangle$ NOTE

Some features on the Transcar LTC2 vehicle are optional and not all features listed in this manual are configured in all systems.

#### CAUTION

The vehicle may only be commissioned after the complete unit has been declared compliant with the CE Machine Directive (where required and in Europe).

## **Decommissioning**

In the event of permanent decommissioning of the vehicle, comply with the applicable statutory regulations for all components regarding:

- re-use
- recycling
- disposal

## Warranty

Repair and maintenance work must only be carried out by personnel authorized by Swisslog. Modifications by the operator to system parts and components are not permitted and shall void the warranty for the entire system.

The operator shall be liable for any damage caused by a maneuver or operating command that is not explicitly referred to in this manual. For additional information regarding the warranty terms, please refer to the contract.

3 +

# Introduction to Vehicle

## **Vehicle Introduction**

This chapter provides an overview of the vehicle system and introduces users to the operating devices and displays.

#### Vehicle Identification

An identification plate is attached to the bracket of the motor securing device. The identification plate lists the vehicle type, unit number, year of construction, and service weight.

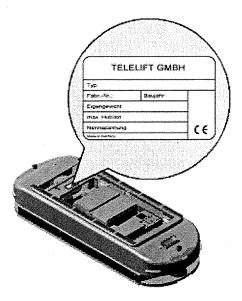


Figure 3.1: Identification Plate

## **Vehicle Operation**

The Transcar LTC2 vehicle transports special containers within buildings. The vehicle is equipped with a lifting unit that raises the top section of the vehicle body to load containers. After the lifting unit raises the container off the floor, the vehicle moves it to its intended destination.

The vehicles are equipped with a passive guidance system that allows for navigation based on prominent features of the building, and do not require any floor devices for navigation. In order to prevent harm to persons, the vehicle, and the building, the vehicles also feature an effective safety system.

The AGV system is comprised of the following:

- ▶ A power pack featuring rechargeable lead (Pb) or nickel cadmium (NiCd) batteries
- ► A system control center software package on a standard Industrial Personal Computer (IPC) controls and navigates vehicles
- ► The layout of the building (contours) including all prominent features (corners, doors, etc.) as well as the path maps (nodes and edges) stored in the Industrial Personal Computer
- ▶ Odometric vehicle movement, determines the exact position of the vehicle
- ► Laser scanners at the front and rear of the vehicle detect obstacles (safety) and relevant building contours
- ▶ Vehicle actions are based on specified virtual points as calculated by laser navigation
- ▶ Safety bumpers immediately stop the vehicle if there is a contact with an obstacle
- ▶ An Emergency-stop button at the front and rear permit persons to stop the vehicle manually
- ▶ A plain text display shows details of the current operating status of the vehicle
- ► A CAN-BUS port allows for vehicle diagnostics and error detection
- ► A COM3 port interface permits connection to the Industrial Personal Computer
- ▶ Communication with the system control center software is transmitted via wireless network
- ► For more information, see "Vehicle Devices (Safety and Operation)" on page 9

#### **Functions**

The vehicles are powered by either a lead (Pb) or a Nickel Cadmium (NiCd) battery. (The battery type is listed on the identification plate. See "Vehicle Identification" on page 6.) The battery charge status is continuously monitored by the Industrial Personal Computer and transferred to the control center software. The vehicle is driven and steered by means of a wheel hub motor located at the front of the vehicle. A second wheel is slave to the drive wheel and is connected via a steering linkage. Two additional stabilization wheels are located on either side of the vehicle.

#### Speed

In order to prevent harm to persons, the vehicle, and the building, the vehicles feature an effective safety system. The vehicle speed is automatically adjusted based on the distance from the next obstacle. The closer the obstacle, the slower the speed of the vehicle. The vehicle stops within a certain distance of another object, as determined for each site application.

## Navigation

An odometric positioning system navigates the vehicle. The position of the vehicle is determined by its distance from walls and other structures. The maps and graphs of the walls and the environmental structures are programmed into the vehicle. By using this navigational approach, Swisslog engineers and specially trained personnel can easily and efficiently reconfigure the vehicle path to meet new requirements.

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#### Communication

Communication between the vehicle and the system control center software is bi-directional through a wireless network. Each vehicle is equipped with transmitter and receiver units for the exchange of data within the entire operating range of the vehicle. Also stored in each vehicle are specified positions on the path. Through the network, the control center is continuously supplied with status messages, while information regarding the traffic regulation and new transport jobs can be communicated from the system control center to the individual vehicle.

#### **Operation Modes**

The vehicle operates in the following modes: Automatic, Manual, Operator, and Diagnostic. The vehicle is in Automatic mode when it is controlled by the system control center. When there is a problem or error, the other modes are used based on the situation. See "Activating Manual, Operator, and Diagnostic modes" on page 27. The plain text display at the front of the vehicle clearly states the current operating mode. The vehicle will reflect "Standby" when waiting for a command.

#### Maintenance

Because the vehicle casing consists of only a few panels, the panels can be easily removed for maintenance and servicing so that all components are accessible. See "Maintenance" on page 45.

## Vehicle Devices (Safety and Operation)

The vehicle has several components to ensure safety and ease of operation.

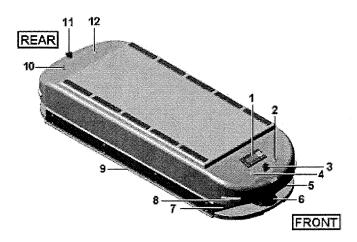


Figure 3.2: Vehicle devices

Table 3.1: Vehicle devices

Device	Number	Description
Control Panel	1	The control panel displays information about the current status of the vehicle.
Start Buttons	2, 10	The vehicle is equipped with a start button at the front and the rear. To start the vehicle, press one of the start buttons.
Emergency Stop Buttons	3, 11	Press the emergency-stop button to immediately halt all vehicle movements in the event of an emergency.
Switches and Interfaces	5, 7	Key switches are used to operate the vehicle and various ports are used to connect external devices.
Laser Scanner	6	The laser scanner contributes to both protection and navigation by detecting obstacles in the direction the vehicle is moving; the scanning range is approximately 10 m (33 ft.) over an angle of 180 degrees.
Vehicle Signal Lights	8	The vehicle is equipped with four vehicle signal lights. They can be programmed to flash when the vehicle takes a right or left turn, and are also used as signals for a number of warning and emergency events. See "Vehicle Signal Lights" on page 15.
Ultrasonic Sensors	4, 12	The ultrasonic sensors allow the vehicle to determine its position below a container that is to be loaded. Note that not all systems contain ultrasonic sensors.

Table 3.1: Vehicle devices

Device	Number	Description
Bumper	9	The bumper extends along all sides of the vehicle. It protects persons and property against any impact by the vehicle. When the bumper touches an obstacle, the vehicle is immediately halted. When the obstacle is removed, the cart continues its journey. If the bumper is in contact with an obstacle for more than four minutes, it is completely halted and does not continue its journey, even if the obstacle is subsequently removed. See "Causes of Halted Vehicles" on page 26.

## **Displays**

The vehicle features several forms of informational displays including the control panel, status indicators, and status indicators.

#### Control Panel

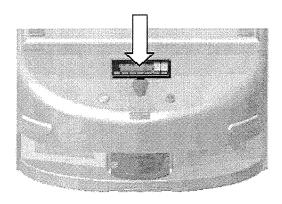


Figure 3.3: Control panel

The control panel is mounted at the front of the vehicle. It allows for vehicle and system diagnosis and consists of a display, a keypad, and four status indicators.

The display provides information regarding transport jobs such as the starting point and destination. It also indicates the current operating status of the vehicle and any error messages. Operators may also select the display language. See "To select a language:" on page 26.

## $\triangle$ note

In the event of an error or malfunction, the control panel flashes (background light turns on and off).

#### Status indicators



Figure 3.4: Status indicators

The four green indicator lights L1, L2, L3, and L4 indicate vehicle statuses and errors. If an indicator light is on, the associated mode is activated. For details regarding the indicators and associated statuses, refer to the table below.

Table 3.2: Status indicators

Indicator light	Status	Description
L1	System control software online	When light is on, the vehicle is online and working with the control center software.
L2	Drive forward	When light is on, the vehicle drive direction is set to Forward.
L3	Container detect	A container has been detected.
L4	Battery charge low	When light is on, the battery charge has reached the minimum level.

## **Proximity Laser Scanner Status Indicators**

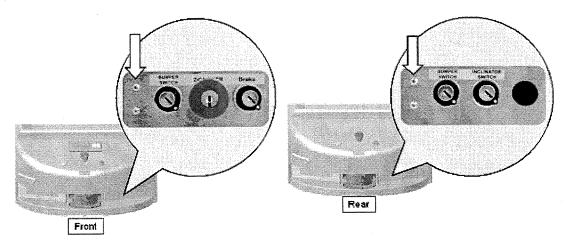


Figure 3.5: Laser scanner status indicators

The Proximity Laser Scanner (PLS) status indicators, one red and one green indicator light, indicate whether an obstacle has been detected within the scanner range. The red indicator light is on if an obstacle is detected or if the vehicle is in standby mode. The green indicator light is on when no obstacles are present.

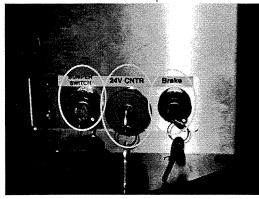
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## **Switches**

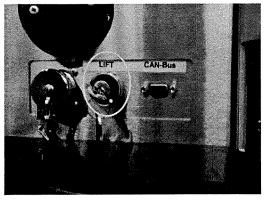
The vehicle is equipped with several switches to operate the vehicle in one of the operation modes. These switches are operated by keys that are only made available to authorized personnel.



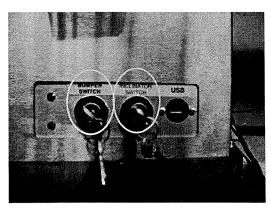
Front left



Front right



Back left



Back right

Figure 3.6: Vehicle switches

Table 3.3: Vehicle switches

Switch	Position	Description
24V CNTR Main Switch (On/Off Switch)	Front right	The 24V CNTR Main Switch is used to turn the vehicle on and off. It is a mushroom-shaped button and can only be released with a matching key. The key is only available to authorized personnel.
Lift Switch	Back left	The Lift Switch allows the container platform to be manually lowered.
Inclinator Switch	Back right	The Inclinator Switch is used to release the lock on the container platform that is usually set in the event of steep gradients.
Brake Release Switch	Front right	The Brake Release Switch may be used while the vehicle is at a standstill, making it possible to manually push the cart, if needed.

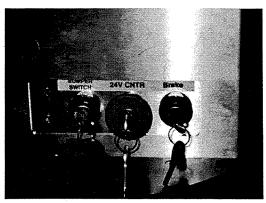
Table 3.3: Vehicle switches

Switch	Position	Description
Bumper Release Switch	Front right Back right	The Bumper Release Switch is used to release the lock that is applied after an emergency stop is initiated by a bumper contact or one of the two laser scanners. Once released, the vehicle can be maneuvered manually from the handheld controller. If the bumper release switch is turned on while in automatic mode, the vehicle may attempt to move when the switch is activated.

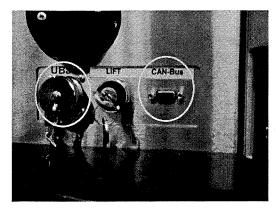
## Interfaces



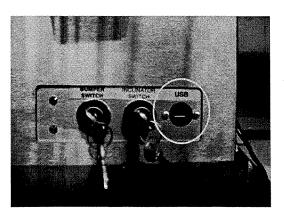
Front left



Front right



Back left



Back right

Figure 3.7: Vehicle ports

Table 3.4: Vehicle interfaces

Interface	Position	Description
CAN-BUS Port	Front left	There is a CAN-BUS Port at both the front and the rear of the vehicle.
	Back left	These are for connecting external diagnostic devices.

Table 3.4: Vehicle interfaces

Interface	Position	Description	
USB Port	Front left Back right	The USB Port is used to connect the vehicle to the handheld controller which allows for the manual control of the vehicle.	
COM3 Port	Front left	The COM3 Port is a serial connection to the Industrial Personal Computer on-board computer.	
Ubatt Battery Charging Port	Back left	The UBatt Battery Charging Port is located on the left rear side of t vehicle. It is used for the recharging the battery with an external recharger.	

## Warning Signals

The vehicle is equipped with four vehicle signal lights that also serve as warning signals.

#### CAUTION

If the visual warning signals indicators are defective or faulty, they may not work correctly. In this situation, immediately stop and repair the vehicle.

Each warning is assigned a unique sequence and frequency of indicator signals. The description, flashing sequences, and frequencies of the different warning signals are shown in Table 3.5 on page 15.

#### Vehicle Signal Lights

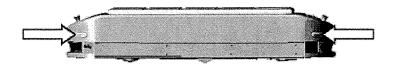


Figure 3.8: Vehicle signal lights

Table 3.5: Vehicle signal Lights

Light	Movement	Flash sequence	Description
all	Vehicle is halted	2 x short flash, followed by an interval of 2 seconds	Vehicle error
all	Vehicle is halted and is about to move	2 x per second for 3 seconds	Vehicle is about to move
all	Vehicle is moving	1 x per second	Vehicle in motion
all	Vehicle is moving	2 x per second	Recharge battery
left	Vehicle is turning left	1 x per second	The vehicle is making a left turn
right	Vehicle is turning right	1x per second	The vehicle is making a right turn

## △ NOTE

The remaining battery capacity is normally sufficient for the completion of the current transport job and return to the recharging station.

## **Audible Signals**

The vehicle is equipped with speakers through which voice warnings can be issued. Operators have the option to select the language in which the warnings are given. In addition to English, which is the default language, operators may choose warnings in their own language.

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## **Vehicle Components**

Figure 3.9 shows the vehicle's major internal components. Descriptions of each are provided below.

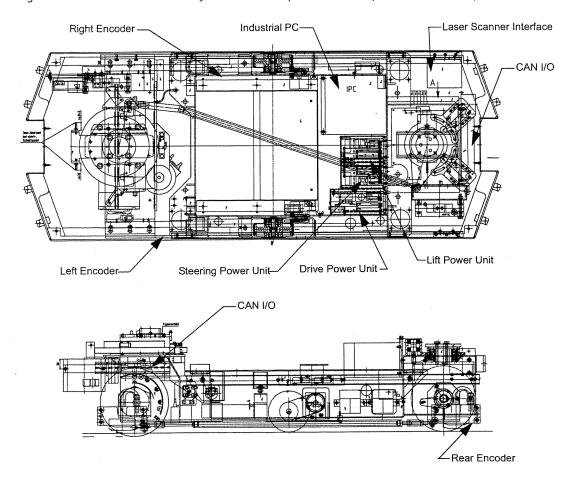


Figure 3.9: Internal components

## **Industrial Personal Computer**

The IPC is the industrial personal computer that directs all operations. This computer holds and runs all software that controls the various components of the vehicle operation. Directional instructions are interpreted from the central system software on the wireless network through the CAN I/O.

Should the IPC require replacement or a software upgrade, refer to "Industrial Personal Computer Updates" on page 140.

## CAN I/O

CAN I/O is the internal communication system in the car. The CAN I/O is the translator that routes all messages among the various vehicle components and the Industrial Personal Computer. It interprets messages from the Industrial Personal Computer, laser scanner, and other components to carry out actions.

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#### Lifting Unit

The lifting unit is a set of four spindle screws attached to a frame that elevates and lowers the lift platform (also called container platform or load platform) of the vehicle. Limit switches that prevent the lift platform from being raised too high.

#### **Drive Unit**

The drive unit, drive controller, and steering controller direct the wheels to move at a particular angle and speed according to commands received from the Industrial Personal Computer via the CAN I/O.

#### **Encoders**

The encoders counts every revolution in minute, precise measurements to analyze vehicle movements to a high degree of accuracy. In conjunction with the graphs and maps loaded on the Industrial Personal Computer, the encoders help determine exactly where a vehicle is located in a building. The encoders are a critical portion of the odometric navigation system.



# 4 +

## Operation

## **Vehicle Operation**

This chapter contains detailed instructions regarding vehicle operation and the various functions available in automatic, manual, and operator modes.

Vehicles are controlled by the system control center software as needed. When not in service, the vehicles are parked at charging or parking areas to keep them out of the way of normal site operations. If the system has been set up with a regular start up and shut down procedure, this will be indicated in the control system software documentation. Normally, vehicles remain in an operational or standby state, unless they have been taken out of service.

#### Vehicle Modes

The vehicle can be placed in a number of modes. Each mode allows a unique set of functions to be performed. The mode that each vehicle is in can be viewed from the control center software. The most common modes and their functions are explained below.

#### $\triangle$ note

When a car is turned off and then turned on it will start in the mode it was in when it was turned off.

#### **Automatic Mode**

Automatic mode is the default mode of the vehicle and is used when the vehicle is controlled by the system control center software. The vehicle must be inserted into the system before it will operate correctly with the control center software; if the message **Wait for insertion** appear, the vehicle is not inserted in to the system. See "Inserting the Vehicle" on page 22.

In Automatic mode, the following functions are available:

- ▶ Standard operation from the system control center
- Restarting the vehicle (see ')
- Releasing the platform lock
- ► Releasing the vehicle brake
- Temporarily disabling the safety bumpers
- Lowering the container platform

#### Manual Mode

In Manual mode, the vehicle can be navigated and controlled by means of a handheld controller/ioystick. In this mode, the following vehicle functions are available:

- ▶ Selecting the maximum speed for Manual mode
- ► Forward and reverse motion
- ➤ Turning left and right
- ▶ Lifting and lowering the container platform

To operate the vehicle by means of the handheld controller, connect the console to the vehicle USB port, and enter the console password. The vehicle can now be operated with the handheld controller. To select a vehicle function, you must press the respective function button. See Table 4.1 and "Activating Manual, Operator, and Diagnostic modes" on page 27.

The vehicle must be re-inserted to begin Automatic mode service, see "Inserting the Vehicle" on page 22.

## ⚠ WARNING

Risk of injury. When maneuvering the vehicle in Manual mode, proceed with extreme caution. Never maneuver vehicle in Manual mode if it is equipped with a container. Before selecting Manual mode, remove the container.

#### Handheld Controller

The figure below shows the handheld controller and its devices. To operate the vehicle, you only need the specified buttons. All other buttons are disabled.



Figure 4.1: Handheld Controller

Table 4.1: Handheld Controller devices

Item	Control device	Function
1	Joystick	Forward/reverse motion; turn to the left/right; lower/lift the platform. See "Moving the Vehicle" on page 29.
2	Left release button	Password protection. See "To connect the handheld controller:" on page 28.
3	Button X	Activation of container platform function. See "Raising and Lowering the Platform" on page 31.
4	Right release button	Password protection. See "To connect the handheld controller:" on page 28.
5	Slide switch	Preselection of maximum speed. See "To select maximum speed:" on page 28.
6	Button C	Forward/reverse motion: option C. See "Moving the Vehicle" on page 29.
7	Button B	Forward/reverse motion: option B; password protection. See "Moving the Vehicle" on page 29 and "To connect the handheld controller:" on page 28.

#### Joystick

The joystick allows for moving forward and backward, turning to the right and left, and controlling the container platform. The joystick is in neutral position if it is at the center of the pad.

Table 4.2 lists the joystick operations used for vehicle functions:

Table 4.2: Joystick operations

Vehicle function	Operation at the handheld controller
Forward	B or C + joystick forward
Reverse	B or C + joystick back
Left	B or C + joystick left
Right	B or C + joystick right
Platform up	<b>x</b> + joystick forward
Platform down	<b>X</b> + joystick reverse

## **Operator Mode**

In Operator mode, a number of vehicle functions are controlled by pressing the respective buttons at the control panel. This mode is specifically designed for diagnostic and maintenance purposes, but can also be used in some situations where automatic control by the system control center software is not available. See "Activating Manual, Operator, and Diagnostic modes" on page 27.

## $\triangle$ note

The vehicle must be re-inserted after using Operator mode. See "To insert the vehicle:" on page 23.



The following functions can be selected by means of the control panel buttons:

- ► Activating Automatic mode
- Inserting the vehicle
- Presetting the direction of motion
- ► Lifting and lowering the container platform
- ▶ Recharging the battery though the battery recharger port

#### Operator Mode Controls

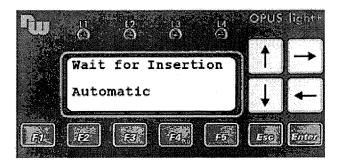


Figure 4.2: Control Panel

The table below describes the functions of the Operator mode buttons:

Table 4.3: Control Panel Functions

Button	Function	Description
F1	Auto	Activate Automatic mode
F2	Insert	Insert the vehicle in the system
F3	Change direction	Change direction of movement
F4	Wait charging on	Activate the battery recharger port
F5	Wait charging off	Deactivate the battery recharger port
ESC	Abort	Terminate the current procedure
$\uparrow$	Up	Lift the platform
$\overline{\downarrow}$	Down	Lower the platform
<del></del>	Left	Jump to the top of the function list (for example, the first insert point in the list)
$\rightarrow$	Right	Jump to the bottom of the function list (for example, the last insert point in the list)

#### Diagnostic Mode

Diagnostic mode is automatically selected when diagnostic tools are plugged into the CAN-BUS or COM3 port. This mode is only used for troubleshooting by authorized personnel using the third-party diagnostic tools. For more information, see the documentation for the diagnostic tools.



#### △ NOTE

When the vehicle is idle at a parking area or charging at a charging station, and awaiting commands from the central control software, the display reads "Standby".

## Operation

Basic operation includes turning the vehicle on and off. The vehicle will start in Automatic mode, which is the normal mode of operation.

#### ➤ To turn on the vehicle:

- 1 Insert the key into the 24V CNTR main switch and turn it clockwise. The switch is released.

  The vehicle power supply turns on and the vehicle system completes a self-test. During the self-test, a number of test routine messages are displayed at the control panel.
- When line 3 of the display reads **Automatic**, the vehicle is in Automatic mode. This usually takes 60 to 90 seconds.

#### ▶ To turn off the vehicle:

#### CAUTION

For maintenance and repair work, this procedure must be strictly adhered to. Otherwise, there is a risk that internal components might be damaged.

- 1 Wait until the vehicle and the drive wheel have come to a complete stop.
- 2 Press the 24V CNTR main switch.

The button engages. The vehicle is now off.

#### Setup

When you first operate the vehicle, you will need to insert the vehicle into the computer software system and select the language in which messages appear on the display panel. You may also need to insert the vehicle when certain errors occur.

## Inserting the Vehicle

When inserting a vehicle into the system, it must be inserted at defined insertion points so that the vehicle can determine its starting location. Insertion is done after performing maintenance on the vehicles, after Manual mode has been used, or when commissioning the vehicle. In the insertion process, the control center software communicates with the vehicle to determine its position and availability.

Vehicles must be inserted at specific positions referred to as insertion points. To ensure proper navigation along the programmed path, the vehicle must be accurately placed onto the insertion point. Prior to inserting, also check the direction of movement set at the vehicle. See "To program direction of movement of the vehicle:" on page 25.



#### Insertion Points

Insertion points are marked with rectangles on the floor. The rectangles are approximately the same size as the vehicle, and an arrow indicates the direction of movement.

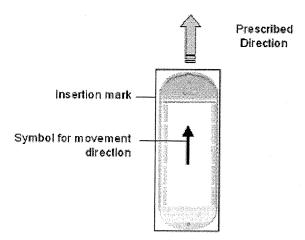


Figure 4.3: Insertion point on the floor

When positioning a vehicle at an insertion point, place it exactly inside the insertion point mark to ensure it follows the correct path. The maximum permitted deviation from the mark (all sides) is +/ - 5 cm (1.9 in).

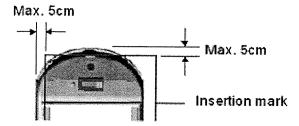


Figure 4.4: Command window

If the control panel is facing in the direction of movement marked by the arrow at the insertion point, the vehicle is parked facing forward. If the control panel is facing away from the direction of movement as marked by the arrow at the insertion point, the vehicle is parked backwards. The vehicle will only move in the prescribed direction.

#### ➤ To insert the vehicle:

- Position the vehicle at the insertion point. See "Activating Manual, Operator, and Diagnostic modes" on page 27.
- 2 Check the position of the vehicle. See "To program direction of movement of the vehicle:" on page 25.



#### CAUTION

If the vehicle is not correctly aligned to the direction of movement, the vehicle might move in the wrong direction.

3 Activate Operator mode. See "To activate Operator mode:" on page 30. The command window displays.



Figure 4.5: Command window

- 4 Press **F2**. A list of the possible insertion points displays.
- 5 Use  $\uparrow$  and  $\downarrow$  to scroll through the list of insertion points, and use  $\leftarrow$  and  $\rightarrow$  to jump to the top or bottom of the list.

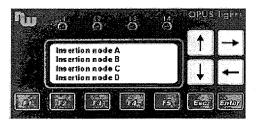


Figure 4.6: Insertion points

- 6 Press **F1** to select the option on the first line, **F2** to select the option on the second line, **F3** to select the option on the fourth line, or **F4** to select the option on the fourth line.
  - The selected insertion point displays. If no insertion point is selected within a period of ten seconds, the display returns to the command window.



Figure 4.7: The selected insertion point

7 Press **Enter** to confirm the selection.

The command window displays.

- 8 Press **F1** to return to Automatic mode.
- 9 Press Enter to confirm (press Esc to abort).
  The command window displays.

#### ▶ To program direction of movement of the vehicle:

The direction of movement is programmed at the vehicle. The direction settings define how the vehicle must be placed onto the insertion point. If the settings do not correspond to the direction indicator at the insertion point, they must be adjusted. It is important that these settings are correct when the vehicle is inserted in the system.

Indicator light L2 at the control panel indicates the preset direction: ON means the vehicle moves forward and OFF means the vehicle moves backward.

- 1 Set the vehicle to Operator mode. See "To activate Operator mode:" on page 30.
- 2 Press F3.

**Direction** change displays. The direction of movement has now been changed to the opposite of what it was. After three seconds, the display returns to the command window. The direction indicator L2 changes from ON to OFF or vice versa.



Figure 4.8: Direction change window

- 3 To confirm the new settings, you must again insert the vehicle at the current insertion point. See "Inserting the Vehicle" on page 22.
- 4 Press F1 to set the vehicle to Automatic mode. The change of direction of movement is now completed.

#### CAUTION

If the settings for direction of movement are incorrect, the vehicle moves in the direction opposite the indicated direction.

#### Selecting a Language

The messages shown at the control panel display are available in two languages. In addition to English (default), operators may choose that messages display in their own language. The language selected here is used for the messages shown at the display and for all audible warnings.



#### ► To select a language:

- 1 Press **F5**. The language selection window displays.
- 2 Press **F1** or **F2**, whichever corresponds to the desired language. The system confirms the selection of the language.



Figure 4.9: Select a language

3 The selected language is shown for three seconds. The display returns to the command window.

#### Restarting the Vehicle

In certain situations, vehicles can be restarted once they have been halted due to an error, programming command, or obstruction.

#### Causes of Halted Vehicles

The vehicle is automatically halted if there is a malfunction. The vehicle may also appear to halt when it does not receive the next command from the control center (the vehicle actually stops at the last known communication point). Line 3 of the control panel display indicates the reason the vehicle has been stopped. See "Error Messages" on page 38.

If one of the messages on page 38 marked with an asterisk (\*) displays, the vehicle can be restarted by pressing the start button.

If only **wait startbutton** displays, the cause for the stop has been eliminated and the vehicle is ready to be restarted in Automatic mode. When the start button is pressed, the vehicle resumes its journey.



Figure 4.10: Wait startbutton display

If the vehicle is halted at a specific point as part of its planned course, **Wait start or time** is shown at the control panel display. After a preset period, the vehicle resumes its journey. Alternatively, the vehicle can be restarted before the set time has lapsed.



If neither of the two messages displays, a more serious error occurred and a simple restart is not possible. To identify other errors, please note the message shown on line 3 of the display and consult "Error Messages" on page 38. If the start button is pressed while one of the other messages displays, Invalid command displays.



Figure 4.11: Error message

#### ➤ To restart the vehicle:

- 1 Press one of the start buttons or **F1** at the control panel.
- 2 The message Attention AGV starts displays for three seconds. The indicator light signals "Vehicle is starting" and the vehicle moves.

## **Vehicle Manual Operations**

In Automatic mode, the vehicle's movements are controlled by the system control center. In certain circumstances it may be necessary to manually move the vehicle or operate its mechanical functions. A handheld controller can be connected to the vehicle to allow manual movement in Manual mode. In Operator mode the following mechanical functions can be accessed through the control panel on the front of the vehicle:

- Activating modes
- ► Raising and lowering the platform
- ▶ Disabling vehicle locks with the key switch (brake, bumpers, laser scanner)

#### Activating Manual, Operator, and Diagnostic modes

When there is a problem with the vehicle, you need to activate Manual or Operator mode to correct some errors. See "Manual Mode" on page 19 and "Operator Mode" on page 20.

#### Manual Mode

In manual mode, you will use a handheld controller/joystick to navigate the vehicle.

#### ► To activate Manual mode:

Manual mode is activated when the handheld controller is plugged into the vehicle. See "To connect the handheld controller:" on page 28.



#### ► To connect the handheld controller:

#### **M** WARNING

Do not connect the handheld controller to the vehicle while it is charging. Doing so may cause serious damage to the vehicle and handheld controller.

- 1 Connect the handheld controller to the USB port.
- 2 Enter the password consisting of the following console button combination:
  - a Press and hold the right trigger.
  - b Press and hold B.
  - c Press the left trigger.
- 3 When the correct button combination is entered, On Joystick displays at the control panel on line 3. The vehicle can now be operated manually by means of the joystick. If an incorrect password is entered, the password dialog remains activated, and you can enter the password again.

#### ▶ To select maximum speed:

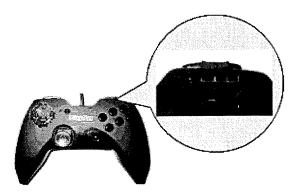


Figure 4.12: Speed slide switch (center position)

- 1 Slide the speed switch to the center position.
  - Stop position. If the slide switch is in position **o** (stop) the vehicle will not move when the joystick is operated.
  - ▷ Center position. Select this speed option for optimum control.
  - Max position. This position selects the maximum vehicle speed. This speed should only be selected if you are experienced in manually navigating the vehicle and if there is ample space available for maneuvering.

#### CAUTION

If the slide switch is in position 4, there is an increased risk of damage to persons and property. When maneuvering the vehicle manually by means of the joystick, always set the speed slide switch to the center position.



#### Moving the Vehicle

To move the vehicle while in Manual mode, you have the option of standing in front of the vehicle (where the port for the control console is located) or to the side of the vehicle facing in the same direction as the front of the vehicle. Depending on your orientation to the vehicle, or the orientation of the vehicle to a permanent object such as a wall, you will press a different button while moving the joystick:

- ▶ If you stand at the front facing the vehicle press and hold **c** while operating the joystick.
- ▶ If you stand to the side and face the same direction as the vehicle's front, press and hold B while operating the joystick.

#### $\triangle$ note

When you move the joystick, ensure that no vehicle movements will accidentally run over the handheld controller cord or hit you.

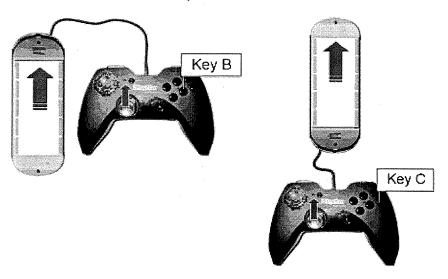


Figure 4.13: Manually moving forward

#### ► To move forward and backward:

- Press and hold the appropriate button (**B** or **C**) based on which end you want the vehicle to move forward.
- 2 Press the joystick slightly away from you to move the vehicle forwards, or towards you to move the vehicle backwards.

#### ▶ To move left and right:

The vehicle can be steered to the left or right by moving the joystick forward and then left or right accordingly. If you are standing to the side of the vehicle, be careful that the vehicle does not hit you.



Figure 4.14: Manually moving left and right

#### **Deactivating Manual Mode**

To terminate operation of the vehicle in Manual mode, disconnect the handheld controller adapter from the USB port. The vehicle is automatically reset to the mode it was in before the handheld controller was connected (Automatic mode, Operator mode, or Diagnostic mode).

You must again insert to the system control center software. See "To insert the vehicle:" on page 23.

#### Operator Mode

Operator mode can only be activated from Automatic mode. If the vehicle is in manual or Diagnostic mode, it must first be set to Automatic mode before Operator mode can be selected.

#### ▶ To activate Operator mode:

- 1 While the Automatic mode command window displays, press any control panel button (except **F1** and **F5**).
- 2 Enter the password, which consists of this specific button combination:
  - a Press and hold F2.
  - b Press and hold F3.
  - c Release F2.
  - d Release **F3**.
  - e Press Enter

Complete these steps without delay. If the password is not entered within 3 seconds, the display returns to the command window.

After the password has been entered correctly, the command window displays.



3 Press Enter to confirm your selection (press Esc to abort).

The display shows the command window. If no button is pressed, the display automatically returns to the command window.

#### ▶ To deactivate Operator mode:

Operator mode can be terminated at any time. To do this, you must set the vehicle back to Automatic mode.

- 1 Ensure that the command window is active. If this is not the case, press Esc.
- 2 Press F1.
- 3 Press Enter to confirm.

#### Diagnostic Mode

When the Diagnostic Client software is connected, the vehicle enters Diagnostic mode automatically.

#### Raising and Lowering the Platform

At times the vehicle platform may be in the raised position when the vehicle is stopped. In this case, it is necessary to lower the platform, especially if there is a container on board that should be removed before moving the vehicle. Because the platform must have power to operate, it must be lowered while the vehicle is turned on.

The vehicle platform can be lowered in Automatic mode by means of the lift switch. This lift switch can only be operated with a matching key. The container platform can also be lowered from the handheld controller or the control panel.

#### CAUTION

Swisslog strongly recommends that when moving the platform with a container, the container be held by a second person.

#### ► To release the container platform lock:

When the vehicle is at an incline (default is an incline greater than 2°), the platform lifting and lowering mechanism is automatically disabled. This automatic lock function prevents the container from rolling off unexpectedly if the platform were to be lowered on an incline.

However, under certain circumstances it might be necessary to lower the platform even if the vehicle is at an incline. Therefore the lock can be disabled using the inclinator switch. Be aware that the container could roll off in this situation if it is not secured.

## $\triangle$ NOTE

The key for the inclinator switch is only available to authorized personnel.

- 1 Secure the container to prevent it from rolling off.
- 2 Insert the key in the inclinator switch.
- 3 Insert the key in the lift switch.



4 Turn the inclinator switch key clockwise and hold it in the stop position. The lowering lock is now disabled.

#### ► To manually raise and lower the container platform:

To raise the platform:

- 1 If the vehicle is on an incline, secure the container to prevent it from rolling off.

  To secure the container, you need the assistance of a second person.
- 2 Set the vehicle to Operator mode. See "To activate Operator mode:" on page 30. The command window displays.
- 3 Press the inclinator switch to release the container platform lock, if required. See "To release the container platform lock:" on page 31.
- 4 Press 1. The platform moves to its upper position. Message Attention lift moves displays. After three seconds, the display returns to the command window.

To lower the container platform in Automatic mode:

#### $\triangle$ note

If the vehicle is in Operator or Manual mode, the container platform cannot be lowered with the lift switch.

- 1 If the vehicle is on an incline, secure the container to prevent it from rolling off.
- 2 Insert the key in the lift switch.
- 3 Turn the key clockwise, hold for approximately two seconds, and release it. The container platform is moved to its lower end position.

To lower the platform in Operator mode:

- 1 If the vehicle is on an incline, secure the container to prevent it from rolling off.

  To secure the container, you need the assistance of a second person.
- 2 Set vehicle to Operator mode. See "To activate Operator mode:" on page 30.
- 3 Press  $\downarrow$ . The platform is slowly moved to its lower end position.

Attention lift moves displays. After three seconds, the display returns to the command window.

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To raise and lower the platform in Manual mode:

To lift or lower the container platform, operate the joystick while holding  $\mathbf{x}$ . The container platform can only be halted in its upper and lower end position.

- 1 Press and hold x.
- 2 Push the joystick slightly away from you. The container platform is slowly moved to its upper end position.

OR

Push the joystick slightly toward you. The container platform is slowly moved to its lower end position.

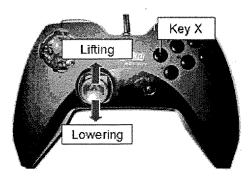


Figure 4.15: Manually lowering the platform

#### Disabling Vehicle Locks

If the vehicle has been halted due to bumper contact or because the laser scanner has detected an obstacle in its path that cannot be moved, the bumper and laser scanner must be disabled and the vehicle moved manually. For safety reasons, this maneuver requires two persons, one to hold the button and the other to maneuver the vehicle at the handheld controller.

In certain situations, it might be necessary to move a halted vehicle from its path, for example if the vehicle cannot be maneuvered manually due to a serious error or malfunction.

Since the vehicle brake is automatically applied as soon as the vehicle is halted, you must first release the brake. To release the brake, use the brake release switch located at the front of the vehicle, which can only be operated with a matching key.

#### CAUTION

If the vehicle was stopped due to a bumper stop or scanner stop for less than four minutes, the vehicle may move when the bumper stop switch is activated.

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#### ► To release the vehicle brake:

#### $\triangle$ note

The key for brake release switch is only available to authorized personnel.

#### CAUTION

Ensure that the vehicle cannot roll off when the brake is released. If necessary, secure the vehicle against rolling off before releasing the brake.

- 1 Insert the key in the brake release switch.
- 2 Turn the key clockwise and hold it in the stop position. The vehicle brake is released and the vehicle can be moved manually.
- ▶ To disable the bumper and laser scanner:

## **M** WARNING

Risk of injury during manual maneuvering. While the bumper switch is pressed, the laser scanner and the bumper, which are important safety devices, are disabled.

## 🛆 WARNING

Do not manually maneuver a vehicle loaded with a container. Always remove the container first.

- 1 Connect the handheld controller to the vehicle (person 1).

  The vehicle is put into Manual mode. Set the speed slide switch on the handheld controller to a low speed.
- 2 Insert the key in the bumper switch (person 2).
  Insert the key in the switch facing away from the intended direction of movement.
- 3 Turn the key clockwise and hold it in the stop position (person 2).

#### CAUTION

Stand beside the vehicle when activating the switch.

- 4 Maneuver the vehicle (person 1).
  - Move the vehicle using the handheld controller until it has reached a position in which it is not impeded anymore.
- 5 Stop the vehicle when it is no longer blocked.
- 6 Release the bumper switch (person 2), release the key, and move away from the vehicle.
- 7 Insert the vehicle. See "Inserting the Vehicle" on page 22.



## **Emergency Procedures**

To stop the vehicle in an emergency situation, press the red mushroom-shaped Emergency Stop button.

When an Emergency Stop button is pressed, all movements such as forward and reverse motion, steering movements, and the lifting or lowering of the platform are immediately stopped. Power is still available, however, and the vehicle remains disabled until the Emergency Stop button is released.

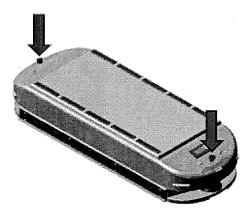


Figure 4.16: Emergency Stop buttons

#### $\triangle$ note

The key used to release the Emergency Stop buttons is only be made available to authorized personnel.

## **A M** WARNING

When an Emergency Stop button is pressed, only the drive motors are switched off, while the vehicle remains powered.

## Charging the Battery with the External Charger

In certain cases, standard battery charging may not be possible, and it might be necessary to recharge the vehicle batteries with an external charger that is plugged into the UBatt port. This might be the case if there is no station for automatic recharging available, or during installation, commissioning, or servicing.



The vehicle is equipped with a recharge port labeled **UBatt** at the rear. This port is not operational in Automatic mode. To use the recharge port, you must set the vehicle to Operator mode. See "To activate Operator mode:" on page 30.

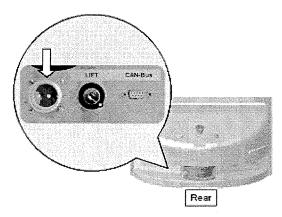


Figure 4.17: Ubatt port (without cover)

The port is suitable for charging both lead and nickel cadmium batteries. Because the port contacts have a maximum capacity of 20 A, ensure that the current does not exceed this value. The maximum recharging voltage depends on the type of lead or nickel cadmium batteries in the vehicle. See "NiCd Battery" on page 138 or "Lead Battery" on page 138.

Any standard charger with 24V and maximum of 20 A charging current can be used. You can order a compatible charger and adaptor plug from Swisslog (part numbers T206034537 and T206034533)

#### CAUTION

During standard operation, the vehicle batteries should always be recharged at an automatic recharging station.

#### Safety instructions

To prevent damage to vehicle components and the battery, please observe the following safety instructions:

- While the batteries are being charged through the recharger port, the contacts at the **UBatt** port and the current collector at the base are live (the battery has voltage).
- ▶ Do not use an external battery charger on a recharging station.
- Prior to switching on the external charger, you must switch on the recharger port.
- During the charging process, do not disconnect the adapter from the port, as this could lead to sparks and damage to internal components.
- ► The contacts of the port have a maximum capacity of 20 A. Do not charge the batteries with a higher recharging current.
- ▶ Do not use the vehicle while the batteries are being charged.
- Recharge the batteries according to the manufacturer instructions.



#### ▶ To charge the battery with the external charger:

- 1 Remove the screw cap from the Ubatt port and connect the charger cable. Make sure the cable is completely plugged into the recharge port.
- 2 Set vehicle to Operator mode. See "To activate Operator mode:" on page 30. The command window displays.
- 3 Press **F4**.

The **Ubatt** port at the vehicle is switched on. **Wait charging on** displays. After approximately three seconds the display returns to the command window.

4 Switch on external recharger.

Check the current using the charger's voltage and current meter. Refer to the manufacturer's instructions.

## **△ △** WARNING

If the current exceeds 20 A, immediately switch off the recharger. Do not overcharge batteries. Always comply with the charger manufacturer instructions.

5 After recharging is completed, switch off the recharger.

## **A** WARNING

Risk of short circuit. Do not disconnect the charging cable while the charging port is switched on, as the contacts at the port are powered by the battery.

- 6 Press **F5**.
  - Wait charging off displays.
- Disconnect the cable from the **Ubatt** port and replace the port cover.

# 5 4

## **Troubleshooting**

## **Error Messages**

Table 5.1 : Error Messages

Error message	Description	Correction
4Min Bumper Stop	Safety bumper interrupted for more than 4 minutes *	Remove the obstacle and press the Start button.
Batt.DeepDischarge	Battery charge low	In the event of a deep battery discharge, the vehicle's charge falls below 21V. Turn the vehicle off. Use the external charger to charge the battery, see "Charging the Battery with the External Charger" on page 35. It may be necessary to use a lift to move the vehicle to the maintenance area. You may wish to remove the battery so the vehicle can operate while the original battery is charging. See "Batteries" on page 80.
Batt.OverTemperature	Battery overheating	Check for a defective battery or excessive load on the battery. This error is critical.
CAN Bus Error	IPC is not receiving signal from one of the following components: lifting unit, drive unit, steering unit, CAN I/O 1 module, or CAN I/O 2 module.	<ul> <li>Restart vehicle with start button.</li> <li>If problem persists,</li> <li>Trace the signal to determine where the signal is being lost.</li> <li>If the problem persists</li> <li>Use the CAN Test Tool to troubleshoot.</li> <li>Verify operation of the Encoder PCB, LSI field controller, and Battery PCB.</li> </ul>

Table 5.1 : Error Messages

Error message	Description	Correction
ChargeRelayOffError	CAN I/O 2 module cannot switch on charge relay	Use the CAN Test Tool to manually switch on charging.
		WARNING Remove the vehicle from the charger before performing this test.
		► Check the F05 and F06 fuses at the rear of the vehicle.
ChargeRelayOnError	CAN I/O 2 module cannot switch off charge relay	Use the CAN Test Tool to manually switch on charging.
		WARNING Remove the vehicle from the charger before performing this test.
		► Check the F05 and F06 fuses at the rear of the vehicle.
ChargeRelayOnTimeout	The vehicle cannot charge; the charge relay fuse is blown.	Replace the 100 amp fuse on relay F1, located in the front right of the vehicle in a black plastic case.
Charging Active Stop	Job is queued while the charge relay is on; the vehicle cannot move while being charged	Cancel the job at the control center software and allow the vehicle to complete the charge.
Container Lost Stop	The container magnet signal of the lifted container lost during transport	Reposition the container or remove the container and cancel the job.
Container Not Detect	The vehicle does not detect the container at the container loading station	<ul> <li>the car arrived, cancel the job to resolve the error.</li> <li>If the signal was not detected, either the container's magnet was lost or the container was positioned incorrectly. Reposition the</li> </ul>
		container or replace the magnet to correct the error.
Drive Emergency Stop	Emergency-stop signal from drive object	Use the CAN Test Tool to view the Drive log and view the Drive Objects in the control center software to determine the error.

Table 5.1 : Error Messages

Error message	Description	Correction
Drive Error	Error signal detected by the drive object *	Restart vehicle with start button. If this does not work, view the Drive Objects in the control center software and use the diagnostic tools to troubleshoot.
EmergencyButtonStop	Emergency-stop button engaged *	Release the Emergency Stop button, then restart vehicle with start button.
Encoder Error Stop	Encoder data error signal from drive unit *	Restart vehicle with start button. If this does not work, use the diagnostic tools to troubleshoot.
Graph Error	The vehicle is unable to open a "corrupted" graph file, or the vehicle received a job order from the system control software to move the cargo to a node that is not defined in the graph file	If this occurs when the vehicle is booted, the graph file must be replaced. If this occurs during normal operation with certain locations, this indicates a conflict in the graph file or TCMS setup and must be resolved by Swisslog.
GraphErrorContDetect	Container magnet is not detected when vehicle is under the container	Contact technical support.
GraphErrorTolerance	The vehicle is not within required tolerance range for container loading	Reinsert the vehicle.
IPC not sending	No signal from IPC via CAN- bus	Contact technical support.
Lift ContDropError	Container cannot be lowered; the inclination sensor is activated	<ul> <li>Verify the inclination sensor is mounted level with the car.</li> <li>Use the CAN Test Tool to view the Lift log and determine the error</li> </ul>
Lift ContPickupError	No signal from container magnet when container is lifted	Reposition the container on the vehicle.
Lift Emergency Stop	Emergency-stop signal from lifting unit	Use the CAN Test Tool to view the Lift log and determine the error.
Lift Switch error	The lifting position switches "Top" and "Bottom" are both activated	Use the CAN Test Tool to view the Lift log and determine the error.
Lift Timeout Down	Timeout during lowering; lifting unit does not detect position switch "Bottom"	Use the CAN Test Tool to view the Lift log and determine the error.
Lift Timeout Up	Timeout during lifting; lifting unit does not detect position switch "Top"	Use the CAN Test Tool to view the Lift log and determine the error.

Table 5.1 : Error Messages

Error message	Description	Correction
LSI Error	Error from laser scanner interface (LSI) unit	See SICK LSI documentation; this may be self-correcting.
LSI Fatal Error	Fatal error from laser scanner interface unit	See SICK LSI documentation; this may be self-correcting.
LSI ser. no response	IPC does not receive signal from laser scanner interface unit	See SICK LSI documentation.
Map Error	The vehicle cannot open map file, file is corrupt	Replace the corrupted map file in the vehicle.
Map Navigation Lost		Recycle the vehicle power and reinsert it at the nearest insertion point.
Odometry Fatal Error	IPC error in odometric data management	Check for obstructions under the side support wheels.
OverCurrentStop	Maximum permitted current consumption exceeded	Contact technical support.
OverTemperatureStop	Maximum permitted operating temperature exceeded *	Restart vehicle with start button.
SafetyHighPowerError	Voltage error signal from drive unit	Contact technical support.
SafetyLiftPowerError	Voltage error signal from lifting unit	Contact technical support.
St. CalibrateWheel	Calibration procedure is active	Restart the vehicle. If the error persists, contact technical support.
St. DataUnderflow	Data underflow from steering potentiometer to steering unit	Use the CAN Test Tool to view the Steering log and determine the error.
ST. Emergency Stop	Emergency-stop signal from steering unit	Use the CAN Test Tool to view the Steering log and determine the error.
St. EndSwitchLeft	The steering unit signals "Left limit switch activated"	Use the CAN Test Tool to view the Steering log and determine the error.
St. EndSwitchRight	The steering unit signals "Right limit switch activated"	Use the CAN Test Tool to view the Steering log and determine the error.
St. RclEndposLeft	Faulty calibration data for "end position left" could be read in the internal memory of the power unit steering after reboot	Use the CAN Test Tool to view the Steering log and determine the error.
St. RclEndposRight	Faulty calibration data for "end position right" could be read in internal memory of power unit steering after reboot	Use the CAN Test Tool to view the Steering log and determine the error.

Table 5.1 : Error Messages

Error message	Description	Correction
StandBy off Error	Standby mode cannot be switched off	Contact technical support.
StandBy on Error	Unit cannot be set to Standby mode	Contact technical support.
StCalibrateEndSwitch	Calibration not possible, steering is in end switch	Use the CAN Test Tool to view the Steering log and determine the error.
StDataEndSwitchError	End switch data not plausible	Contact technical support.
Steering Timeout	Steering motor connection defect or switch is turned off	Use the CAN Test Tool to view the Steering log and determine the error.
SteeringDataOverflow	Data overflow from steering potentiometer to steering unit	Use the CAN Test Tool to view the Steering log and determine the error.
Target Not Possible	The vehicle cannot complete job from the control center software; the target node cannot be reached from the current node	<ul> <li>This error may occur if the vehicle was rebooted at a position where the only path to it's destination is through an exclusive node that the vehicle cannot move to until another action has occurred. For example, if there is a problem with a charger not turning on, and a vehicle is waiting at the charger node for the charger to turn on, the vehicle may be rebooted. Once rebooted, the control center may send it to an idle job node. But if the only path to the idle job node is through the main charger node (an exclusive node only reached when the charger turns on), the vehicle will post the Target Not Possible error. The solution is to then reinsert the vehicle.</li> <li>See control center software documentation.</li> </ul>
TCMS Offline	The AGV cannot contact the control system software via the wireless network; verify the software is online	Restart the system control center computer or restore communication between the computer and the wireless LAN. Check the vehicle wireless LAN configuration.
Ventilator Error	CAN I/O 1 module cannot switch on fan	Check for fan failure during charging using the CAN I/O diagnostics.
*Vehicle can be restarted by press	sing the Start button.	

### **Troubleshooting Table**

### $\triangle$ note

To recycle the power on the vehicle, turn the vehicle off, wait 20 seconds, then restart the vehicle.

Table 5.2: Troubleshooting

Fault	What To Do
Bumper stop	<ul> <li>Check the display for the Bumper stop error.</li> <li>▶ Tap the bumpers. If the error clears when the bumper is tapped, check the bumper circuit.</li> <li>▶ Connect the handheld controller to the vehicle. Try to move the vehicle; if it will not move and the error remains, isolate the fault to the bumper using the CAN tool and/or replace the bumper.</li> </ul>
Vehicle will not drive	The vehicle will stop if it encounters an obstacle that is not moved, such as a wall, or if it loses contact with the control center software.  Troubleshoot the following:  ➤ A fuse may have blown. Connect the vehicle to the handheld controller and try to move the vehicle. If the vehicle moves only slightly, check the red LED under the drive controller where the fuses are located to determine whether any of the 15 amp fuses have blown.  ➤ Verify the 40 amp drive controller fuse has not blown (located at the top of the drive controller).  ➤ Verify the drive controller is functioning properly.
LSI fatal error	<ul> <li>Ensure laser scanner lenses are clean and not scratched. If scratched, replace the lens and perform scanner calibrations. Cycle the vehicle power.</li> <li>Perform a CAN Test of encoders 2 and 4 to verify proper functioning.</li> <li>Verify the Laser Scanner Interface power supply is functioning properly</li> <li>Perform diagnostics on the Industrial Personal Computer and CAN I/O to verify proper functioning.</li> <li>Check the cables and connections between the encoders and the LSI.</li> </ul>
Encoder error	Check the wheels for material in front or on the wheels. Press the start button.
Lost of navigation	Reinsert the vehicle and recycle the power. See "Inserting the Vehicle" on page 22. If there is still a problem with navigation, check the belts connected to Encoders 2 and 4.
Battery deep discharge	In the event of a deep battery discharge, the vehicle's charge falls below 21V, and requires a manual charge. See "Batteries" on page 80
Obstacle stop	Remove the obstacle and press the Start button.
Protection field stop	<ul> <li>Remove the obstacle.</li> <li>If the problem persists, verify there is nothing in front of the scanner and clean the lenses</li> </ul>
Error encoder stop	<ul> <li>Ensure the support wheel belt is not slipping and the gear is tight on the encoder.</li> <li>Inspect the encoders on the drive motor and rear wheel.</li> <li>If the problem persists, replace the encoder on the support wheels.</li> </ul>

Table 5.2: Troubleshooting

Fault	What To Do
Vehicle speed is too fast	Ensure the encoder is installed securely and properly; loose installation can cause the vehicle to speed. Check encoder 1 using the CAN tool and/or the diagnostics client. If necessary, replace the encoder.
IPC errors	If there is an IPC error, check the functionality of encoder 1 as IPC errors can cause problems with this encoder.
Laser scanner error	<ul> <li>Clean the laser scanner screens.</li> <li>Reboot the vehicle.</li> <li>If the error persists, use the SICK diagnostic tool to verify proper functioning of the laser scanner.</li> </ul>
Container error	If the vehicle encounters a problem at a container pickup station, such as the container not being present or misaligned, it will send an error message to the control center software.  To correct this problem:  If the platform is not raised, position the container correctly until Indicator Light 3 (L3) is lit.  If the platform is raised, use Operator mode (see "Activating Manual, Operator, and Diagnostic modes" on page 27) to lower the platform. Then reposition the container so that indicator light 3 (L3) on the display panel is lit, and raise the vehicle platform so that it lifts the container. Remember to set the vehicle to Automatic mode so that it can continue it's journey. If the job drops out of the system, reinsert the vehicle and send a new job request for the container.
Vehicle drifts off course	Recycle the power. If there is still a problem with navigation, check the belts connected to Encoders 2 and 4.
Other common problems	Generally, if the control system software reports a problem with the vehicle, corrective measures can be made using Manual mode (see "Activating Manual, Operator, and Diagnostic modes" on page 27). Placing the vehicle into Manual mode will clear the error, then the vehicle is re-inserted at the next insertion point so that it can reestablish communication with the control center software.

### **Diagnostics**

There are a variety of diagnostic and programming tools available for the vehicle and it's components. Please refer to the documentation located at the end of this document to learn more about them these tools.

### Removing the Vehicle from Service

Vehicles are instructed to be removed from service by the central control software. Once a vehicle has been maintained or serviced, it is re-inserted into the system so that it can resume automatic operation by the central control software. See "Inserting the Vehicle" on page 22.

### 6 4

### Maintenance

### Overview

This chapter describes the regular inspection and maintenance of the Transcar LTC2 vehicle. These measures are designed to enhance the safety, availability, and service life of the vehicle.

Please read this entire chapter before starting work on the vehicle.

Some troubleshooting and error correction measures may require the use of external diagnostic tools such as the SICK diagnostic client. Refer to the documentation about these external tools for more information.

### $\triangle$ note

Avoid time-consuming efforts to solve a problem that is likely to require specialist skills and/or knowledge by yourself. In many cases, it is more efficient and cost effective to contact Swisslog for expert on-site support.

### CAUTION

Use only original spare parts. Such spare parts help ensure that your transport system retains its value. Malfunctions and defects caused by the use of third-party components are not covered by the Swisslog warranty.

### Warranty Compliance

To comply with warranty terms for the vehicle, operators must regularly inspect and maintain the equipment to keep it in proper working order.

### Warnings

- ▶ All maintenance and repair work at the vehicle must be carried out by suitably trained personnel who have been instructed on all potential risks in connection with such work.
- ▶ If there is visible mechanical damage to a vehicle component, do not operate the vehicle.
- ▶ When cleaning the vehicle with compressed air, always wear protective goggles.
- ▶ Prior to any maintenance work, shut down the vehicle and disconnect it from the power supply. See "To turn off the vehicle:" on page 22.
- Use insulated tools whenever possible.
- ► Tighten screws according to their quality and function; use the recommended torque for each screw.

### Inspection/Maintenance Intervals

The inspection and maintenance schedule (shown in Table 6.1) defines the intervals at which the vehicle is to be inspected and serviced. The schedule also highlights any issues that must be observed in the context of inspection and maintenance.

It is the operator's duty to follow the prescribed preventative maintenance schedule, as this is necessary in order to ensure the safe, reliable, and efficient operation of the vehicle.

The intervals for inspection and maintenance are based on an average vehicle use of seven operating hours per day (operating hours = hours during which the vehicle is in motion).

The following inspections are mandatory (see Table 6.1 for inspection details):

- Visual inspection: daily
- ▶ Inspection A: weekly or after 50 operating hours, whichever comes first
- ▶ Inspection B: quarterly or after 600 operating hours, whichever comes first
- ▶ Inspection C: every 6 months or after 1200 operating hours, whichever comes first
- ▶ Inspection D: annually or after 2400 operating hours, whichever comes first
- ▶ Inspection E: every 2 years or after 4800 operating hours, whichever comes first
- ▶ Inspection F: every 4 years or after 10,000 operating hours, whichever comes first

### **Daily Inspection Requirements**

Inspect the vehicle for visible damage, changes to settings, etc. In particular, inspect for cleanliness and test the mechanical operations of the following components:

- Lift platform and adhesive pads
- Laser scanner
- Status indicators
- Vehicle hood
- Bumper
- Control panel
- Operating devices

### Other Inspection Requirements

Inspection A (weekly) does not require any preparation, as it consists only of a visual inspection of the unit and a function check of the safety components.

For the completion of inspections B-F, the vehicle housing must be opened and certain covers must be removed.

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## Inspection Schedules

Table 6.1: Overview of inspections and maintenance jobs

9 N	Item	Instructions		lnsp	Inspection Intervals	Interv	als	
			A(W)	B(Q)	C(HY)	Wα	E(2Y)	F(4Y)
100 BODY		"Body Maintenance" on page 62						
101	Hood	"To inspect the vehicle hood:" on page 64	0					
102	Indicator	"To perform an indicator light function test:" on page 66	0					
103		"To inspect vehicle signal lights." on page 66	О					
104	Lift platform cover	"To inspect the lift platform and anti-slip pads:" on page 63						
105		"To inspect platform for level position:" on page 76		o				
106	Adhesive pads	"To inspect the lift platform and anti-slip pads:" on page 63	٥					
200 CHAS	CHASSIS AND RUNNING GEAR	"Chassis and Running Gear" on page 67						
201	Antistatic contact	"To test conductibility:" on page 68				0		
202		"To inspect for damage:" on page 68						
203		"To inspect for antistatic wire ground contact:" on page 68						
204	Support wheels	"To inspect seating of the left and right support wheels." on page 67				O		
205		"To inspect connectivity of the left and right support wheels:" on page 67				0		
206		"To inspect for wear of the left and right support wheels:" on page 68						
207	Fan	"To check fan functionality:" on page 69						
208		"To check fan charging function:" on page 69						
209	Steering	"To inspect the steering linkage for damage:" on page 75						
210		"To inspect the steering linkage for ease of movement:" on page 75				0		
211	Joint head and tie rod	"To inspect the tie rod and joint head:" on page 75						

Table 6.1: Overview of inspections and maintenance jobs

	No No	Item	Instructions		lnsp	ection	Inspection Intervals	als	
				A(W)	B(Q)	B(a) C(HY)	<u>ω</u>	E(2Y)	F(4Y)
	212	Screwed connections at tie rod	"To inspect screwed steering linkage connections." on page 75						
300	LIFTING UNIT	3 UNIT	"Lifting Unit" on page 76						
	301	Toothed belt	"To inspect the toothed belt for wear:" on page 77				o		
	302		"To inspect belt tension:" on page 77				О		
	303	Lifting spindle	"To inspect lifting spindles." on page 76						1
	304	Limit switch .	"To inspect limit switches:" on page 76						
400	SAFETY	SAFETY DEVICES	"Safety Devices" on page 92						
	401	Emergency Stop buttons	Inspect the Emergency Stop button for damage						
	402		"To perform the Emergency Stop button function test:" on page 92				·		
	403		Inspect the Emergency Stop button for proper seating						
	404	PLS laser scanner	"To perform a laser scanner function test:" on page 93	0	-				
	405		"To inspect the laser scanner for damage." on page 93						
	406		"To inspect the laser scanner for proper seating:" on page 94						
	407	Front panel	"To inspect the laser scanner front screen." on page 95						
	408	Bumper	Inspect the bumper for damage and replace if necessary						
	409		"To perform a bumper function test:" on page 96						
	410	PLS status display	"To perform a laser scanner status display function test:" on page 65						
200	POWEF	POWER SUPPLY UNIT	"Power Supply Unit" on page 79						
	501	Current collector	"To inspect the current collector for wear:" on page 79						
	502		"To inspect electrical insulation:" on page 79				0		
	503	High-current cable	"To inspect the high current cable connection:" on page 79				0		
009	LEAD B	LEAD BATTERY PACK	"Lead Batteries" on page 80						

Table 6.1: Overview of inspections and maintenance jobs

Second Battery packs		No N	ltem	Instructions		lnsp	Inspection Intervals	Inter	vals	
Retaining straps  To check the lead battery terminal voltage." on page 83  To check the lead battery terminal voltage." on page 83  To check the lead battery terminal voltage." on page 83  To check the lead battery straps." on page 83  Plug-in connections  To inspect the lead battery straps." on page 83  Connecting cables  To inspect the lead battery cable seatings." on page 84  To visually inspect the nickel cadmium battery pack." on page 88  To visually inspect the nickel cadmium battery service recharge." on page 89  To effail nickel cadmium battery service recharge." on page 89  To perform a nickel cadmium battery pawer plugs." on page 89  To perform a nickel cadmium battery cable seating." on page 89  To perform a nickel cadmium battery distilled water." on page 89  To perform a nickel cadmium battery cable seating." on page 81  Power plug  Power connections and To inspect the nickel cadmium battery cable seating." on page 83  VE SYSTEM  Seating  To inspect seating of the drive/steering unit:." on page 70  Seating  To inspect seating of the drive/steering unit:." on page 70  Ground cables  To inspect seating of the drive/steering unit:." on page 70  Wheel hub drive  To inspect seating of the drive/steering unit:." on page 70  Wheel hub drive  To inspect seating of the drive/steering unit:." on page 87  To inspect seating of the drive/steering unit:." on page 87  To inspect seating of the drive/steering unit:." on page 87  To inspect seating of the drive/steering unit:." on page 70  Seating  To inspect seating of the drive/steering unit:." on page 87  To inspect seating of the drive/steering unit:." on page 87  To inspect seating of the drive/steering unit:." on page 87  To inspect seating of the drive/steering unit:." on page 87  To inspect seating of the drive/steering unit:." on page 87  To inspect seating of the drive/steering unit:." on page 87  To inspect seating of the drive/steering unit:." on page 87  To inspect seating of the drive/steering unit: on page 87					A(W)	B(a)	с(нY)	D(Y)	E(2Y)	F(4Y)
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Power connections and other cables       "To inspect the nickel cadmium battery cable seating:" on page 85       Image: 85	1 ' '	704	Power plug	"To inspect the nickel cadmium battery power plugs:" on page 84		О				
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Gear system "Left/Right Support Wheels" on page 67	1	803	Wheel hub drive	"Left/Right Support Wheels" on page 67						
		804	Gear system	"Left/Right Support Wheels" on page 67						

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Table 6.1: Overview of inspections and maintenance jobs

	No	Item	Instructions		lnsp	Inspection Intervals	ervals	
				A(W)	B(Q)	A(W) B(Q) C(HY) D(Y) E(2Y) F(4Y)	) E(2Y)	F(4Y)
	805	Driving wheel	"To inspect for wear of the left and right support wheels:" on page 68					
	908	Direct-current motor	"To replace the wheel motor ball bearings:" on page 72					
	_807		"To inspect the wheel carbon brushes:" on page 72			0		
	808	Electromagnetic brake	"To inspect electromagnetic brake:" on page 72			0		
	608	Servo unit	"Servo Unit" on page 74					
	810	Direct-current motor	"Servo Unit" on page 74					
	811		"Servo Unit" on page 74			0		
006		Power units	"Drive Power Unit" on page 73 "Steering Power Unit" on page 74					
	901	Power unit of drive	"To inspect the drive power unit seating:" on page 73		o		,	
	902	Connecting cable	"To inspect the drive power unit connecting cables:" on page 73		o			
	903	Connections to ground	"To inspect the drive power unit connection to ground:" on page 73		0			
	904	Power unit of steering	"To inspect the steering power unit seating:" on page 74			0		
	905	Connecting cable	"To inspect the connecting cables." on page 74					
	906	Power unit of lift	"To inspect the lift power unit seating:" on page 78			٥		
	907	Connecting cable	"To inspect the lift power unit connecting cables:" on page 78		٥			

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# Vehicle Maintenance Log

Table 6.2 : Maintenance log

Operating hours	Inspections	ons					Date	Signature	Comments	
	A	В	C	0	Ш	ц.				
Vehicle no.:										
50-100-150-200-250					:					
300										
350-400-450-500-550										
009	0	0								
650-700-750-800-850										
006						,				
950-1000-1050-1100- 1150										
1200	0	0	0					-		
1250-1300-1350- 1400-1450										
1500										
1550-1600-1650- 1700-1750										
1800		0								
1850-1900-1950- 2000-2050										
2100	٥									
2150-2200-2250- 2300-2350										

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Table 6.2 : Maintenance log

2400 🗖		العامدون					Date	Signature	Comments
		В	ن	0	Ш	±			
			_	_					
2450-2500-2550- C									
2700		0	en e						
2750-2800-2850- C									
3000		0							
3050-3100-3150- C									
3300					,				
3350-3400-3450- 3500-3550									
3600	0	0	0						
3650-3700-3750- C									
3900									
3950-4000-4050- 4100-4150	000								
4200	0	٥							
4250-4300-4350- 4400-4450									
4500									
4550-4600-4650- 4700-4750									
4800 E								The second secon	

Table 6.2 : Maintenance log

Operating hours	Inspections	ons					Date	Signature	Comments
	A	В	Ú	0	ш	ш			
4850-4900-4950- 5000-5050									
5100		0							
5150-5200-5250- 5300-5350									
5400		0							
5550-5500-5550- 5600-5650									
5700	0	О							
5750-5800-5850- 5900-5950									
0009	٥	٥	٥	-					
6050-6100-6150- 6200-6250							,		
6300									
6350-6400-6450- 6500-6550				-					•
0099									
6650-6700-6750- 6800-6850									
0069									
6950-7000-7050- 7100-7150									
7200	٥								
7250-7300-7350- 7400-7450									

Table 6.2 : Maintenance log

Operating hours	Inspections	suo				-	Date	Signature	Comments
	A	8	ن	0	ш	L.			
7500									
7550-7600-7650- 7700-7750									
7800									
7850-7900-7950- 8000-8050									
8100	0	0				-			
8150-8200-8250- 8300-8350									
8400		0	٥						
8450-8500-8550- 8600-8650									
8700									
8750-8800-8850- 8900-8950									
0006	0	o							
9050-9100-9150- 9200-9250									
9300	0								A LANGE CONTRACTOR OF THE CONT
9350-9400-9450- 9500-9550									
0096	0				o	0			

### **Preventive and Corrective Maintenance**

To maintain the vehicle, you will need to fully inspect the exterior components. Some maintenance procedures may require the removal of the lift platform and vehicle hood, and/or disassembly of some components. Be sure to follow the procedures carefully.

Whenever performing maintenance, always turn the vehicle off. If it is necessary to turn on the control units, there is an on/off switch on the inside of the vehicle frame for this purpose.

### Tools and Auxiliaries

Table 6.3: Tools and Auxiliaries

Tools / auxiliary	Comment
Hex key	Sizes 3, 4, and 5
Open end wrench	5 mm, 6 mm, 7 mm, 8 mm, 10 mm, 13 mm, 14 mm, 16 mm, and 17 mm
Insulated torque wrench	
Digital multimeter	Used for voltage and conductivity testing
Antistatic plastics detergent	Used for cleaning laser scanners
Clean cloth	Used for cleaning laser scanners
Eye-bolt (4x)	Used to lift the vehicle (included in delivery)
Hook (2x)	Used to remove the nickel cadmium battery block (available from Swisslog)

### **Torque Specifications**

The following measurements of torque are appropriate for the screw size indicated.

Table 6.4: Tools and Auxiliaries

Screw	Torque
5 mm	5 Nm (3.69 Ft/lbs)
6 mm	9 Nm (6.64 Ft/lbs)
8 mm	20 Nm (14.75 Ft/lbs)
10 mm	45 Nm (33.19 Ft/lbs)
12 mm	80 Nm (59 Ft/lbs)
14 mm	115 Nm (84.82 Ft/lbs)
16 mm	190 Nm (140.14 Ft/lbs)



### **Basic Disassembly**

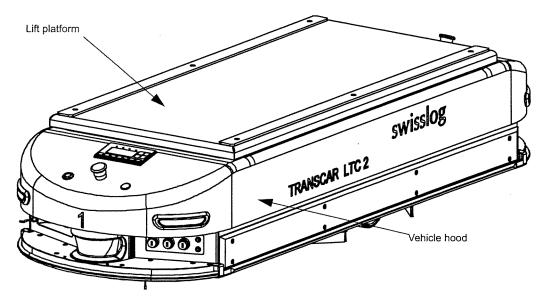


Figure 6.1: Lift platform and vehicle hood

### **A**WARNING

Turn off the vehicle before performing any maintenance. See "To turn off the vehicle:" on page 22.

### ► To remove the lift platform:

The lift platform is secured to the lifting frame with six hex socket head screws. When removing the lift platform, proceed with special care to avoid damage to the vehicle hood and other components.

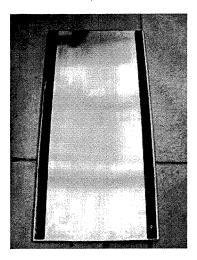


Figure 6.2: Lift platform securing screws

- 1 Loosen and remove the six securing screws.
- 2 Remove and store the lift platform.

### **A**WARNING

Risk of injury. Heavy component. Secure the lift platform against falling or slipping off. We recommend placing the platform horizontally onto a stable surface or floor.

### **MARNING MARNING**

Risk of electrical shock. Do not place any metal parts onto vehicle components or the battery.

### ▶ To remove the vehicle hood:

The vehicle hood (see Figure 6.1) is secured to the lifting frame by the same screws as the lift platform. To remove the hood, you must first remove the lift platform. See "To remove the lift platform:" on page 57.

Because a number of components such as switches, the control panel, and cable connections are attached to the hood, the plug-in adapters must be disconnected before the hood can be removed. See "To disconnect the power supply:" on page 59.

### **A** WARNING

The cables connecting the switches and the control panel are integrated into the hood. When removing the hood, do not damage the cables. In order to prevent damage to the hood cabling, we recommend working in a team of two.



- 1 Turn off the vehicle.
- 2 Remove the lift platform. See "To remove the lift platform:" on page 57.
- 3 Disconnect the power.
- 4 Disconnect the ultrasonic sensors by carefully disconnecting the plugs (1 and 2).

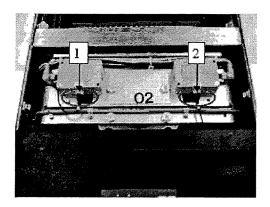


Figure 6.3: Ultrasonic sensor cable

5 Pull the cable from the cable clip. To open the terminal, press the clip release tab.

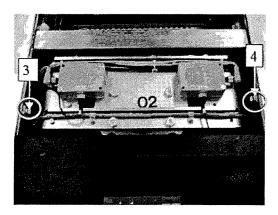


Figure 6.4: Ultrasonic sensor cable clip

6 Disconnect the adaptor plugs 5 and 6 by carefully pulling apart the plastic plug housings.

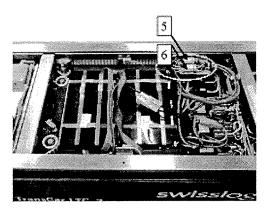


Figure 6.5: Plug -in adaptors

- 7 Bend the platform wiring harness and push it towards the side of the hood.
- 8 Carefully remove the hood to ensure that none of the cables are caught.

### ► To disconnect the power supply:

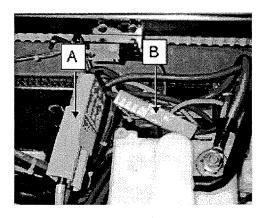


Figure 6.6: Power supply high current plugs

Disconnect the vehicle from the power supply by disconnecting the two high-current plugs [A] and [B].

### ► To raise the vehicle:

To raise the vehicle, use the four eye-bolts. The eye-bolts are included in the delivery of the vehicle.

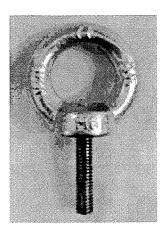


Figure 6.7: Eye-bolt

### CAUTION

To raise the vehicle, only use a suitable hoist. Always attach all four eye-bolts. Screw eye-bolts only into the outer bores of the lifting frame.

1 Screw eye-bolts into the outer threaded bores of the lifting frame.

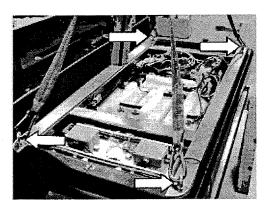


Figure 6.8: Eye-bolt attachment

- 2 Attach the hoist to the eye-bolts.
- 3 Carefully raise the vehicle.

### **Basic Reassembly**

► To attach the vehicle hood and reconnect the power:

### $\triangle$ NOTE

To attach the vehicle hood, work in teams of two.

### CAUTION

Be sure to re-route hood cables correctly to prevent damage to the cables.

- 1 Carefully lower the hood onto the frame. When positioning the hood, ensure that any cables are not caught or kinked.
- 2 Connect plug-in adapters 1 and 2.

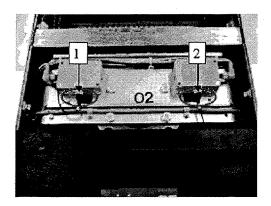


Figure 6.9: Ultrasonic sensor cable

3 Insert cable in clip. To open the terminal, press the top part of clip.

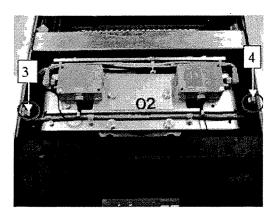


Figure 6.10: Ultrasonic sensor cable clip

### 4 Connect plug-in adapters 5 and 6.

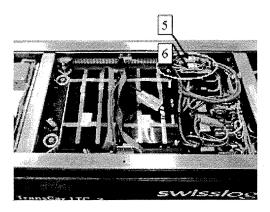


Figure 6.11: Plug -in adaptors

### ► To attach the lift platform:

- 1 Place the lift platform onto the lifting frame. Lift the platform over the vehicle and carefully position it on the lifting frame.
- 2 Secure the hex socket head screws with snap rings and tighten them.

### **Body Maintenance**

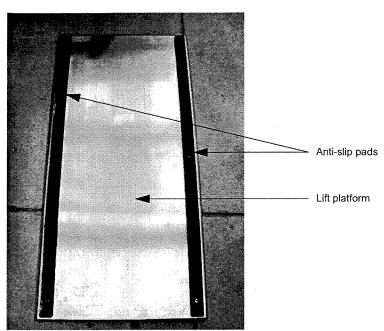
The exterior of the vehicle body must be properly maintained to protect the interior components and ensure that all switches, safety, and warning features are in proper working order.

### Lift Platform and Anti-Slip Pads

The lift platform and anti-slip pads ensure that containers will be transported safely.

### CAUTION

Do not treat anti-slip pads with grease, oil, cleansers that leave a film, or other similar substances. Risk of dislocation of the container. Keep the anti-slip pads clean and dry.



### ▶ To inspect the lift platform and anti-slip pads:

Figure 6.12: Lift platform and anti-slip pads

- 1 Inspect the lift platform for dirt and clean if necessary. Ensure that the surface is smooth and level.
- 2 Inspect the anti-slip pads for dirt and clean them, if necessary.
- 3 Inspect pads for proper adhesion.

### ► To clean the lift platform and anti-slip pads:

To remove dirt, use a mild household detergent such as a window cleaner. Be sure the detergent does not leave a film as this could cause damage to the surface, and thoroughly wipe the entire area with a dry cloth to remove any trace of film.

### Vehicle Hood

► To inspect the vehicle hood:

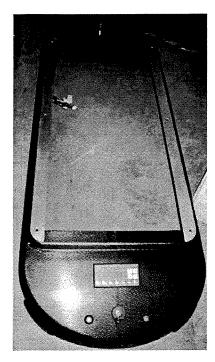


Figure 6.13: Vehicle hood

Inspect the vehicle hood for dirt and damage. If necessary, clean the hood with a mild household detergent as described in "To clean the lift platform and anti-slip pads:" on page 63.

### Laser Scanner Status Display

▶ To perform a laser scanner status display function test:

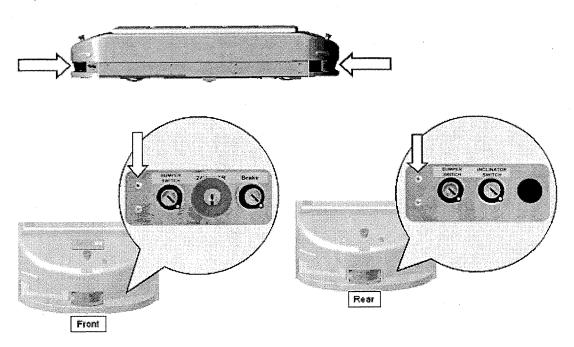


Figure 6.14: Laser scanner status display location

While the vehicle is turned on, place an object in the scanning area of one of the laser scanners and observe the laser scanner status LEDs: the green indicator light must be off, while the red indicator light activates. When the object is removed, the red indicator light must be off and the green indicator light must be on.

### Vehicle Signal Lights

### CAUTION

Immediately stop and repair the vehicle if an indicator is defective or faulty.

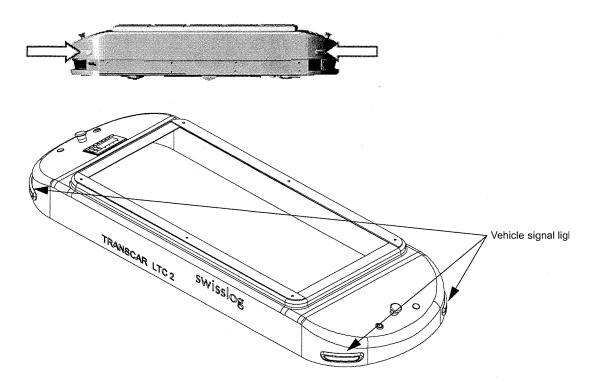


Figure 6.15: Indicator light location

### ► To inspect vehicle signal lights:

Inspect indicators for mechanical damage and replace if necessary.

### ► To perform an indicator light function test:

While the vehicle is turned on and in Automatic mode, ensure all lights are flashing. If necessary, the CAN test module can be used to check functionality. See the CAN test documentation for more information.

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### Chassis and Running Gear

### Left/Right Support Wheels

The left and right support wheels are located in the middle of the vehicle on the left and right sides. These wheels are attached to an encoder which helps determine the position of the vehicle, therefore correct maintenance on the support wheels ensures proper vehicle navigation.

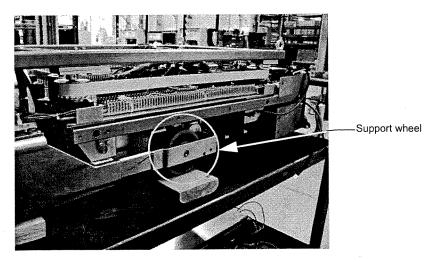


Figure 6.16: Support wheels

To inspect seating of the left and right support wheels:

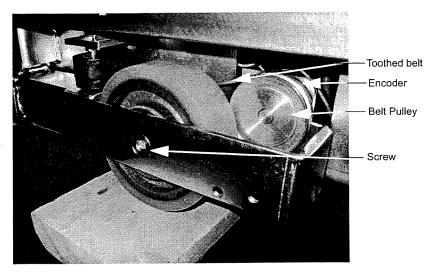


Figure 6.17: Side wheel detail

Check the hex screw on the spindle for seating. Tighten the screw if necessary.

To inspect connectivity of the left and right support wheels:

Check the wheels for connectivity to the chassis, encoder, and encoder toothed belt.

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### ► To inspect for wear of the left and right support wheels:

- 1 Measure the wheel diameter to establish the degree of wear at the drive wheel.
- 2 Contrary to the maintenance instructions of the manufacturer, the wheel must be replaced when it is worn down to a diameter of 122 mm ().

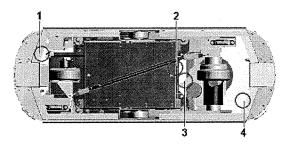
This is the component upon which distance and odometric navigation is computed, therefore excessive wear will lead to navigational errors.

### **A** WARNING

If the wheel diameter is smaller than 202mm (7.95 in), there is a risk of damage to the charging contacts on the vehicle when it is moved onto the charging station.

### **Antistatic Wires**

The vehicle is equipped with flexible wires that protect it against static charge.



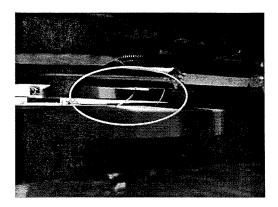


Figure 6.18: Anti-static wires (underside view)

### ► To inspect for antistatic wire ground contact:

The wires must have sufficient contact with the floor. To inspect for contact, look under the vehicle from the side. If necessary, use a mirror or place the vehicle onto the test bench for a better view.

### ▶ To inspect for damage:

The ends of the wires are equipped with protective caps that prevent the conductor from fraying. Check that the caps are mounted securely and not damaged.

### ➤ To test conductibility:

Measure the electrical resistance between the wires and the chassis using an ohmmeter. Normal resistance is approximately 1–5 ohm; resistance exceeding 500 ohm indicates the antistatic wires are damaged.

### Fan

The fans are located at the side of the battery compartment and are not visible unless the battery is removed. These fans cool the compartment during battery charging and expel any noxious gasses inside the vehicle during operation.

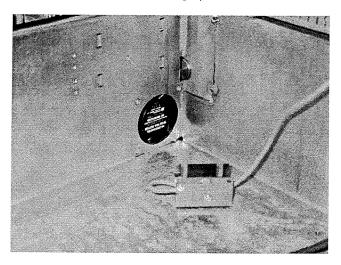


Figure 6.19: Fan location (battery removed)

### ► To check fan functionality:

Perform the appropriate diagnostics test using the CAN test tool. See the CAN test documentation for more information. Also verify that the connective wires or plugs are not damaged.

### ► To check fan charging function:

Perform the appropriate diagnostics test using the CAN test tool. See the CAN test documentation for more information.

### ▶ To inspect for fan wear:

When the battery is removed, observe the fan for any signs of wear. Blow it out with compressed air to reduce dust build-up and extend fan life.

### Drive/Steering Unit

The drive/steering unit includes all the components of the drive and steering motor unit manufactured by Sauer Danfoss. This unit is pre-assembled by the manufacturer and is installed as once piece. It includes the drive wheel, drive motor, and steering assembly.

### **Drive/Steering Seating**

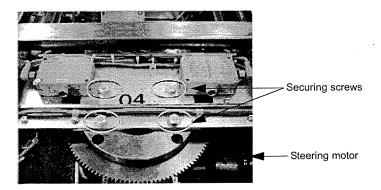


Figure 6.20: Drive unit and securing screws

### ► To inspect seating of the drive/steering unit:

Check securing screws for proper seating; retighten if necessary (17 mm wrench).

### Drive/Steering Connection to Ground

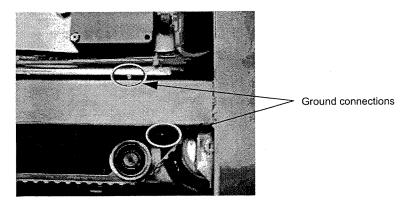


Figure 6.21: Drive unit ground connection

### ► To inspect connection to ground:

Check screw connection of ground cable at the chassis and drive unit for proper seating. Retighten screw, if necessary.

### **Drive Motor**

For drive motor maintenance, see manufacturer's documentation.

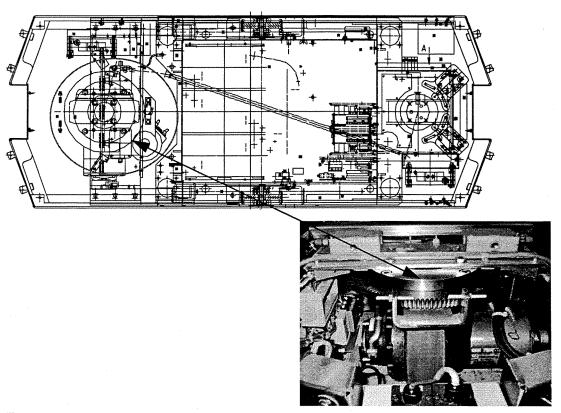


Figure 6.22: Drive motor location

### ▶ To inspect drive motor brushes:

- 1 Check motor brushes for wear.
- 2 Check compression spring and replace them if defective or less than 10 mm (3.9 in).

### ► To check speedometer/pulse generator:

Perform the appropriate diagnostics test. See the manufacturer's documentation.

### ► To check the encoder:

The encoder determines the speed of the vehicle. Check the encoder for proper seating and attachment to the vehicle; a loose installation can cause the vehicle to speed. The left and right encoder outside mounting plates both have 3 countersunk holes. If the screws do not seat properly, you may be attempting to mount the left encoder on the right side mounting plate. Be sure the screws seat fully into the countersunk holes for proper operation.

If necessary, verify the functionality using the AGV diagnostic client.

### ► To inspect electromagnetic brake:

- 1 Measure the gap between rotor and armature disk. The maximum gap width is 0.65 mm (0.3 in).
- 2 Clean the brake by blowing it out with compressed air.
  See separate documentation "Servo unit" by Sauer-Danfoss.

### ► To inspect the drive motor wheel for wear:

- 1 Inspect the wheel for wear.
- 2 Measure the wheel diameter. If less than 196 mm (7.72 inches).
- 3 If necessary, replace the drive motor wheel (Sauer-Danfoss part number 404 052 575). To replace the wheel, first remove encoder 1.

### ► To replace the wheel motor ball bearings:

In the event of a repair to the motor, always replace the ball bearing if it has been removed.

### ► To inspect the wheel carbon brushes:

- I Inspect carbon brushes for wear and replace if necessary (minimum length is 10mm (0.39 in)).
- 2 Clean brush recess and check brushes for ease of movement.
- 3 Check spring pressure of brush springs.



### **Drive Power Unit**

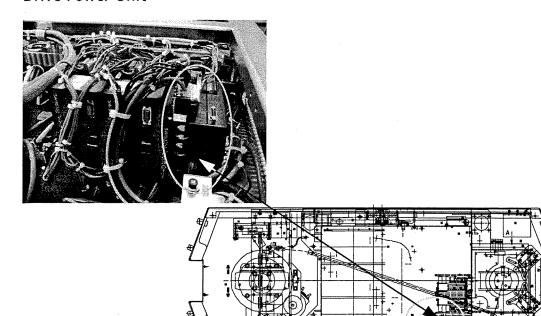


Figure 6.23: Drive power unit

- ► To inspect the drive power unit seating:
  - Check the seating of the power unit. Retighten screws, if necessary (7 mm wrench).
- ► To inspect the drive power unit connecting cables:
  - Inspect the cables for damage.
- ► To inspect the drive power unit connection to ground:

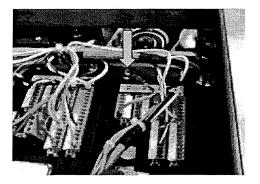


Figure 6.24: Drive power unit connection to ground

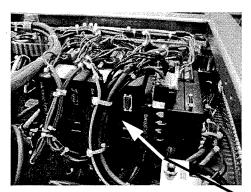
Check the screw connection of the ground cable between the drive power unit and the chassis. Retighten the screw, if necessary.

### Servo Unit

For servo unit maintenance, see manufacturer's instructions.

### Steering Power Unit

► To inspect the steering power unit seating:



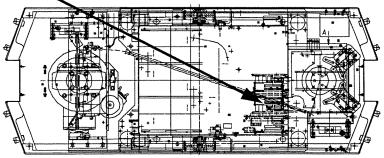


Figure 6.25: Steering power unit

Check the seating of the power unit. Retighten the screws, if necessary.

### ► To inspect the connecting cables:

Inspect the cables for damage.

### Steering Linkage

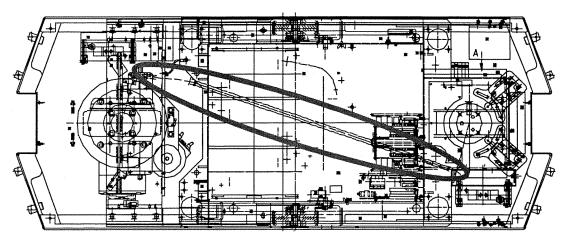


Figure 6.26: Steering linkage

### ► To perform a steering linkage function test:

Check the steering linkage at the drive unit and the second steering wheel for ease of movement while using the Diagnostic Tool.

### ► To inspect screwed steering linkage connections:

Inspect the screw connection of the tie rod (16 mm and 17 mm wrenches).

### ► To inspect the steering linkage for damage:

Inspect the steering linkage components for mechanical damage and replace if necessary.

### ► To inspect the tie rod and joint head:

Inspect the tie rod and the joint head for mechanical damage and replace if necessary.

### ▶ To inspect the steering linkage for ease of movement:

Check steering linkage at the drive unit and the second steering wheel for ease of movement (no sticking or binding) while using the diagnostic tool.

### Lifting Unit

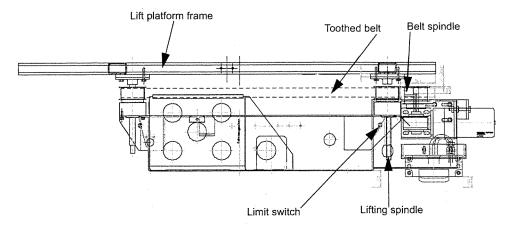


Figure 6.27: Lifting unit

### Lift Platform

### ► To inspect platform for level position:

Ensure the vehicle is on level ground before performing the following procedure. If the platform is not level, remove the hood and lift platform, identify the area at the lifting frame that is not level, and adjust the lifting spindle, if necessary.

- Loosen the belt sufficiently that it can be removed from the lifting spindle teeth using the belt tension screw. See "To inspect belt tension:" on page 77.
- With the belt removed, rotate the spindles slightly to adjust the height of the corners of the platform.
- Ensure that all corners of the platform are level with each other by checking side to side and diagonally with a level. The vehicle must be on level ground.
- 4 Replace the belt and re-tighten the tension appropriately. See "To inspect belt tension:" on page 77.

### Lifting Gear

### To inspect lifting spindles:

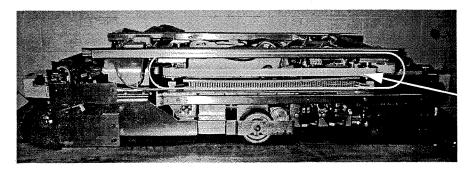
Inspect the lifting spindle threads for wear and tear. If there is damage, replace the lifting spindle.

### ▶ To inspect limit switches:

Check the function of the lifting spindle limit switches using the diagnostic tool. If it they are damaged, replace the limit switches.



# Toothed Belt



Toothed belt

Figure 6.28: Toothed belt from side

# ► To inspect the toothed belt for wear:

Inspect the toothed belt for wear and tear, particularly at the toothed side. If there are any signs of wear and tear on the belt, immediately replace it.

# ► To inspect belt tension:

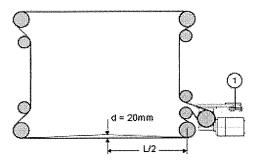


Figure 6.29: Toothed belt tension

To check whether the toothed belt is properly tensioned, press it lightly (finger pressure) at the longitudinal side. If the belt can be pressed in more than 20 mm (0.79 in), retighten it using the tensioning screw.

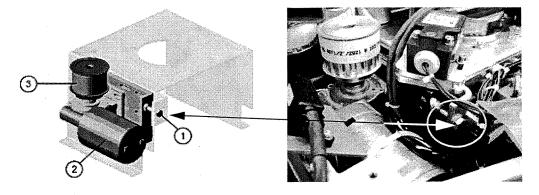


Figure 6.30: Toothed belt tensioning screw

# Lift Power Unit

► To inspect the lift power unit seating:

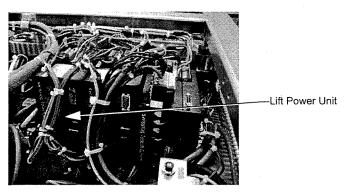


Figure 6.31: Lift power unit screws

Check the seating of the power unit. Retighten the screws, if necessary.

► To inspect the lift power unit connecting cables:

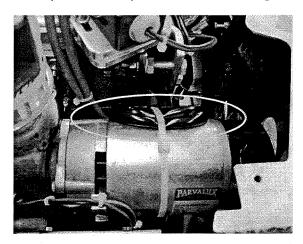


Figure 6.32: Lift power unit cables

Inspect the cables for damage and replace if necessary.

# **Power Supply Unit**

# **Current Collector**

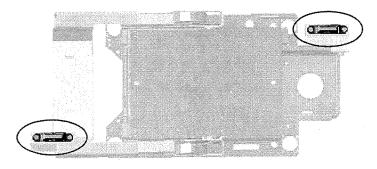


Figure 6.33: Power supply unit current collector (underside view)

# ► To inspect electrical insulation:

Inspect the insulation between the power supply unit and the body. If the protective housing is damaged, replace it.

# ► To inspect the current collector for wear:

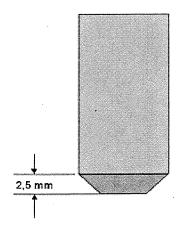


Figure 6.34: Current collector

To establish whether the wear is within the permitted range, visually inspect the phase located at the side. If the current collector is worn by more than 2.5 mm (0.1 in), the phase is not visible, and the current collector must be replaced.

# ► To inspect the high current cable connection:

Inspect the connection of the high-current cable to the current collectors and retighten, if necessary.

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### **Batteries**

There are two types of battery discharges: low charge and standard deep discharge. The first occurs when the battery runs below 21V, at which point the vehicle comes to a complete halt. The second occurs in daily use when the battery charge is above 21V and can be recharged at a recharging station. See "Troubleshooting Table" on page 43.

There are two types of battery charges: standard and service charge. The first is done on a regular basis to keep the vehicle powered for use. The second is a maintenance procedure that requires the battery to be charged outside of the vehicle. See "To perform a nickel cadmium battery service recharge:" on page 91.

# **General Warnings**

- ► Keep batteries away from heat or flames.
- ► Always use insulated tools when working on the batteries.
- ▶ When handling batteries, do not wear any jewelry, wristwatches or rings.
- Disconnect the batteries from the electronic assemblies.
- ▶ The battery box is made with plastic; avoid contact with organic solvents or adhesives.

# **M**WARNING

Prior to disconnecting the plug-in adapters, switch off the vehicle. See "To turn off the vehicle:" on page 22.

### **Lead Batteries**

### Warnings

- ▶ In the event of skin, eye, or clothing contact with acid, thoroughly flush area with water.
- ► In the event of contact with electrolyte, thoroughly flush area with water and seek medical attention immediately.
- Wear protective eyeglasses and clothing.
- ► Ensure 5–10 mm (0.20 0.39 in) air space between battery blocks.



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# ► To remove the lead battery pack:

To remove the battery packs, disconnect the plug-in adapters from the power supply unit of the on-board electronics (gray plug) and the recharging contacts (blue plug). Also disconnect the two battery packs from each other (gray plug).

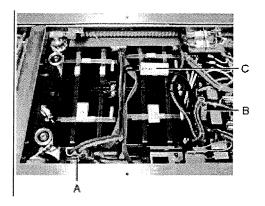


Figure 6.35: Lead battery power plugs

- 1 Remove the lift platform.
- 2 Disconnect plugs A, B, and C. When disconnecting the plugs, pull on the plastic clips, not the cable.
- 3 Remove battery packs from of the vehicle using the lifting straps.

### To install the lead battery pack:

# CAUTION

Ensure that the batteries are positioned correctly in the vehicle.

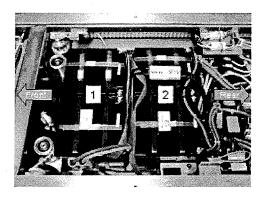


Figure 6.36: Lead battery pack position

To install the batteries in the vehicle, complete the above steps in reverse order. Check position of the battery packs (pack 1 = front; pack 2 = rear) and the position of the poles (poles must face towards the rear of the vehicle).

► To visually inspect the lead battery pack:

Inspect the batteries for mechanical damage such as cracks, deformation of battery housing, or damage to the battery poles.

► To inspect the lead battery high current plug-in adaptor:

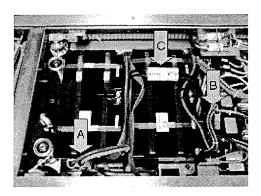


Figure 6.37: Lead battery high current plug-in adaptor

Inspect high-current plugs A, B, and C for scorched contacts.

► To inspect the lead battery cable seatings:

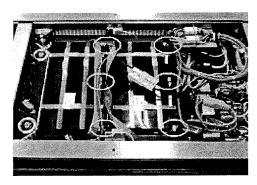


Figure 6.38: Lead battery cable seating

Inspect the screw connections of the connecting cables and the lines between the individual battery packs. If necessary, the CAN tool can be used to verify connections. Recommended torque for the tightening of the battery poles is 2–3Nm (1.48 – 2.21 Ft/lbs).

### ► To inspect the lead battery straps:

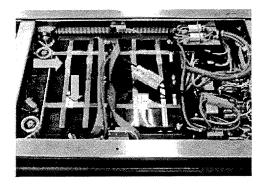


Figure 6.39: Lead battery straps

Check the battery straps to ensure that they are properly tightened. Check the batteries for proper seating.

### ► To check the lead battery capacity:

For lead batteries, Swisslog recommends that the voltage of each individual battery be measured with a multimeter every six months at full recharge level using the CAN diagnostic tool.

- 1 Fully discharge and then recharge the batteries.
- 2 Test the battery capacity following the instructions provided by the manufacturer of the multimeter. The minimum voltage must be 2.1 V per cell or 12.6 V per pack. If the voltage is below this value, the entire battery block must be replaced.

# **A** WARNING

When replacing batteries, always replace the entire block and not individual packs.

### ► To measure the lead battery terminal voltage:

As part of the annual maintenance, measure and record the open terminal voltage and the voltage curve during discharge with a multimeter. The open terminal voltage of a battery must be at least 12.5 V.

### Nickel Cadmium Batteries

There are two configurations of batteries, a right terminal configuration and a left terminal configuration. Two batteries of each configuration are used in one battery pack. When replacing, be sure to replace with the correct configuration, see "NiCd Battery" on page 138.

### Warnings

- ▶ Keep batteries away from heat or flames.
- ► Always use insulated tools when working on the batteries.
- ▶ Wear caustic-proof protective gloves as well as goggles and protective clothing.
- ► Contact with the electrolyte can damage your skin and especially your eyes.
- Avoid all contact of the electrolyte with skin, clothing and eyes. In case of contact with skin, immediately wash skin thoroughly with soap and water. In the case of contact with eye, immediately flush with plenty of water and/or 10% boric acid solution.

# **A**WARNING

Leaking or otherwise defective hoses of the replenishing system must be immediately repaired or replaced.

► To visually inspect the nickel cadmium battery pack:

Inspect the batteries and the hoses of the water replenishing system for spilled electrolyte and mechanical damage such as cracks, deformation of battery housing, or damage to poles. Refer to the battery manufacturer's instructions for details.

▶ To inspect the nickel cadmium battery power plugs:

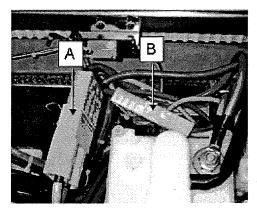


Figure 6.40: Nickel cadmium battery power plugs

Inspect the power adapters of the current collectors and the vehicle electronics for scorched contacts and proper seating.

# ► To inspect the nickel cadmium battery cable seating:

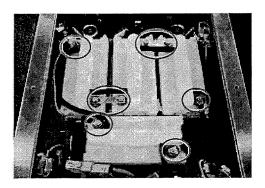


Figure 6.41: Nickel cadmium battery cable seating

Inspect the screw connections of the cables and contacts between the individual battery packs. If necessary, the CAN tool can be used to verify connections. Recommended torque is 2–3 Nm (1.48 – 2.21 ft/lb-force)

# **A**WARNING

Risk of short circuit. The screwed cable seating may only be tightened with an insulated torque wrench.

### ▶ To remove the nickel cadmium battery pack:

The nickel cadmium batteries are placed in a battery tray, which is secured by two bolts to the base tray of the vehicle. The entire battery block can be removed from the vehicle together with the battery tray.

To remove the battery tray, we recommend using a battery tray hook (available from Swisslog).

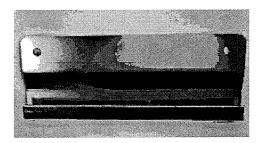


Figure 6.42: Nickel cadmium battery tray hook

1 Disconnect high-current plugs [A] and [B]. Disconnect the adapter by carefully pulling the ends of the high-current plugs.

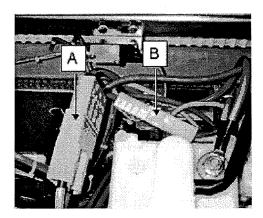


Figure 6.43: Nickel cadmium battery high-current plugs

2 Dismantle the container sensor. Loosen the two securing screws of the container sensor and pull off the mounting angle holding the sensor.

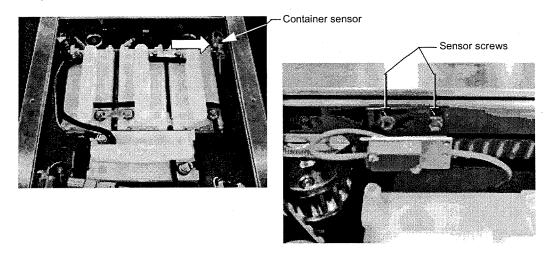
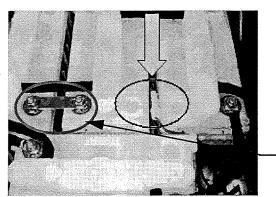


Figure 6.44: Nickel cadmium battery container sensor and screws

3 Disconnect the temperature sensor adapter. Pull up the plug-in adapter between the two batteries to disconnect them. Place the cable to the side so that it cannot be entangled when the battery tray is removed.



 Sensor may be located on connector

Figure 6.45: Nickel cadmium battery temperature sensor adaptor

4 Attach the battery tray hook to the U-profiles at the sides of the battery tray.

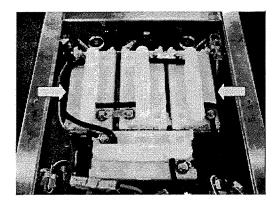
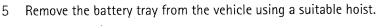


Figure 6.46: Nickel cadmium battery hook on the battery tray



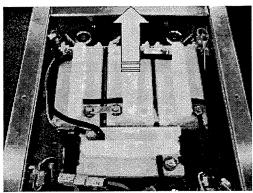


Figure 6.47: Nickel cadmium battery tray being removed

# ► To install the nickel cadmium battery pack:

To install the nickel cadmium batteries in the vehicle, complete the above steps in reverse order.

### ► To clean the nickel cadmium batteries:

If necessary, clean the batteries with plain water. Refer to the manufacturer's documentation for more information.

# **A**WARNING

Do not use washing agents to clean nickel cadmium batteries.

# ➤ To inspect fluid level:

The fluid level is visible through the battery housing and must be between the two marks shown below.

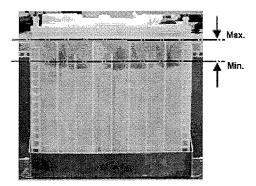


Figure 6.48: Nickel cadmium battery fluid level

Check the fluid level of the built-in nickel cadmium batteries by illuminating the housing from the side with a light. To check the level in batteries that were removed from the vehicle, move them slightly to make the fluid level apparent.

In order to ensure that the fluid level does not drop below the minimum mark before the next inspection, add distilled or demineralized water to a level of 5 mm (0.19 in) above the minimum mark.

# **A**WARNING

Risk of fire. The electrode plates must at all times be immersed in the electrolyte. In the event of insufficient electrolyte, there is a risk of short circuit and fire.

# ► To refill nickel cadmium battery distilled water:

To refill the battery cells, use only distilled or demineralized water. Never use tap water or water recommended for the refilling of lead batteries as such liquids may contain sulfuric acid.

### Refilling system

To add distilled water to the batteries, we recommend using the refilling system shown below.

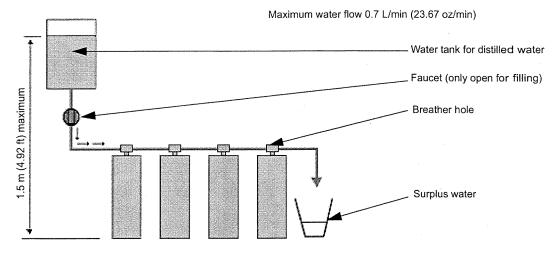


Figure 6.49: Nickel cadmium battery refilling system

When adding water to the individual cells, ensure that the liquid tank is no more than 1 m (3.28 ft) above the battery poles (water pressure < 0.15 bar (2.18 PSI)) and that the flow rate does not exceed 0.7-1.0 I/min (23.67- 33.81 oz/min). Otherwise, there is a risk that gas will trapped in the cells that cannot escape through the bleed openings. In this case, the cells cannot be properly replenished.

### ▶ To inspect the nickel cadmium battery cables and straps:

Check the battery straps to ensure that they are properly tightened. Check the batteries for proper seating.

### ▶ To check the nickel cadmium battery capacity:

Refer to the multimeter and battery manufacturer's instructions or use the CAN diagnostic tool.

# ► To perform a nickel cadmium battery service recharge:

# **A**WARNING

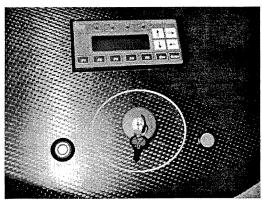
- ▶ Do not complete a service recharge when the battery is partly or fully charged.
- ▶ Do not complete a service recharge while the batteries are installed in the vehicle.
- ► Risk of damage to components by spilled electrolyte. If electrolyte escapes from the battery, immediately stop the service recharging procedure.
- ▶ If the service recharge is performed indoors, ensure adequate ventilation.
- ▶ Do not recharge batteries individually.
- ▶ When recharging, connect the entire battery block to the external recharger.
- ▶ After completion the service recharge, wait 30 minutes before adding water to the battery.
- Avoid all contact of the electrolyte with skin, clothing and eyes. Risk of chemical burns. If the capacity of the batteries is considerably reduced, it can be restored to nearly its original level by completing a service recharge.
  - For manual service recharging, use only the D480G24 charger by Swisslog.
- 1 Remove the battery pack from the vehicle. See "To remove the nickel cadmium battery pack:" on page 85.
- 2 Hook the battery up to the charger.
- 3 Set the charger to Service Recharge (not Quick Recharge). The battery will be charged in about four hours.
- 4 Allow the battery to cool. Inspect it to ensure there are no leaking fluids or other problems.
- 5 Replace the battery in the vehicle. See "To install the nickel cadmium battery pack:" on page 88.

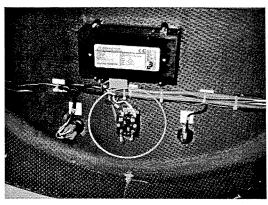
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# Safety Devices

# **Emergency Stop Button**





Top of hood

Underside of hood

Figure 6.50: Emergency stop button location (top and underside of hood)

# ► To perform the Emergency Stop button function test:

Test the function of the Emergency Stop button on a vehicle without container. While the vehicle is in motion, press the Emergency Stop button. The vehicle must be immediately halted.

### Inclination Sensor

The inclination sensor must be mounted level to the car and in the proper orientation to function properly. Improper mounting can result in a "container drop off" error.

### Laser Scanners

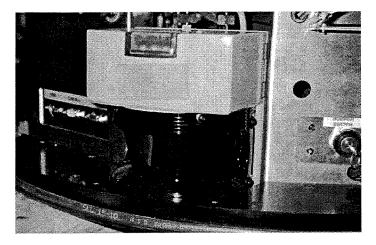


Figure 6.51: Laser scanner (front view)

# ► To perform a laser scanner function test:

- 1 Trigger the scanner by placing an object in the scanning area of one of the laser scanners:
  - ▷ at a distance of 50 cm (19.68 in) from the vehicle
  - b at a distance of 2 m (6.56 ft) from the vehicle
  - ⇒ at a distance of 10 m (32.81 ft) from the vehicle
- Observe the laser scanner status signals at the front and rear of the vehicle. The moment the obstacle is detected in the scanned area, the laser scanner status signals at the front and rear of the vehicle must change from green to red.

### ► To inspect the laser scanner for damage:

Inspect the laser scanners for mechanical damage or unauthorized interference. Use the SICK diagnostic tools to verify proper functionality.



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# ► To inspect the laser scanner for proper seating:

Check the securing screws of the two laser scanners and the holding brackets for proper seating. Also check the screw connections at the cube-shaped plugs.

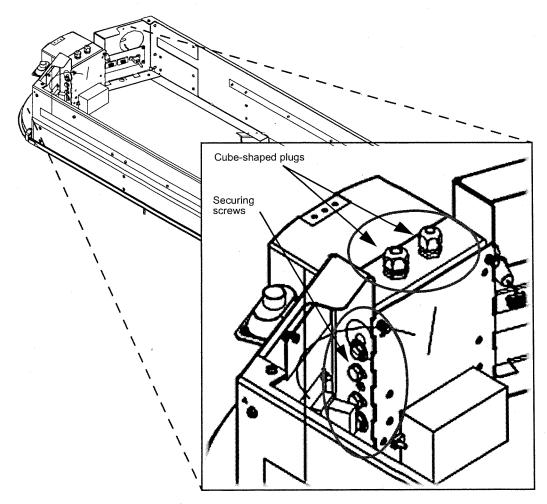


Figure 6.52: Laser scanner securing screws

► To inspect the laser scanner front screen:

# $\triangle$ NOTE

If the vehicle is halted and the control panel display shows message PLS Error, check the front screen for dirt and clean if necessary.

### CAUTION

If the front screen is scratched, it must be replaced. The front screen may only be replaced by suitably qualified personnel.

If the laser scanner is dirty, the scanner's yellow LEDs will flash once per second while the green indicator light is steadily lit. If the screen is not cleaned, the scanner could potentially shut down (indicated by a steady red indicator light on the laser scanner).

Regularly inspect the front screens of the scanner for dirt and damage. Clean the screens, if necessary.

▶ To clean the laser scanner front screen:

### CAUTION

The front screen is an optical component and should not be scratched or otherwise damaged, as this could lead to a laser scanner malfunction. Never clean the front screen with a rough cloth, chemically aggressive detergents, household detergents, or abrasive cleaners.

Clean the front screen with a soft, nonabrasive, moist cloth, using an antistatic detergent for plastics. We recommend using the plastics detergent by SICK AG, order no. 5 600 987. Always follow the manufacturer instructions.

# Bumper

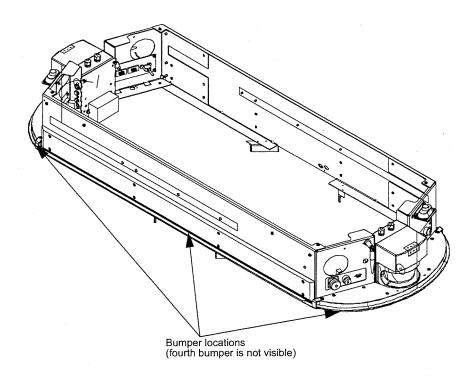


Figure 6.53: Bumper Locations

There are four bumpers on the vehicle, one in front, one in back, and one on either side. The bumpers come in two sets (as viewed from the front):

- Front and right
- ► Rear and left

# ► To perform a bumper function test:

While the vehicle is on and in Automatic mode, gently press each bumper to simulate vehicle contact with an object. The control panel should display Bumper Stop. If necessary, the CAN tool can be used to verify performance.

# ▶ To inspect the bumper:

Inspect bumper for visible damage, wear, and mounting.

# ▶ To replace the bumper:

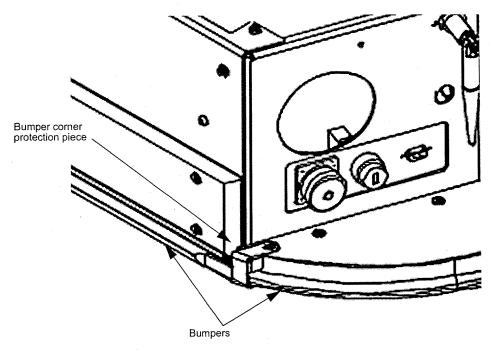


Figure 6.54: Bumper Protection Pieces

- 1 Remove the lift platform and vehicle hood as described in "Basic Disassembly" on page 56.
- 2 Disconnect the bumper connections.
- 3 Remove the corner protection pieces from the bumper to be replaced.
- 4 Slide the bumper out of the C-channel.
- 5 Slide the new bumper into the C-channel, ensuring it is properly seated.
- 6 Reconnect the bumper connections.
- 7 Replace the corner protection pieces.

# 7 +

# Parts Identification

# **Parts Identification**

The following parts guide contains diagrams of each component within the Transcar LTC2. Each component diagram is followed by a parts list that includes the item number as labeled on the diagram, the part number, the part description, and the quantity needed per assembly.

To order parts, call 1-800-396-9666.

### **Illustrations Overview**

Illustrations are provided throughout this manual to aid in locating various components. The drawings are provided in the European standard according to ISO 128. The views are arranged as follows, with reference to the front view, the other views are arranged as follows:

- ▶ The view from above is placed underneath
- ► The view from below is placed above
- ▶ The view from the left is placed on the right
- ▶ The view from the right is placed on the left
- The view from the rear may normally be placed on the left or on the right

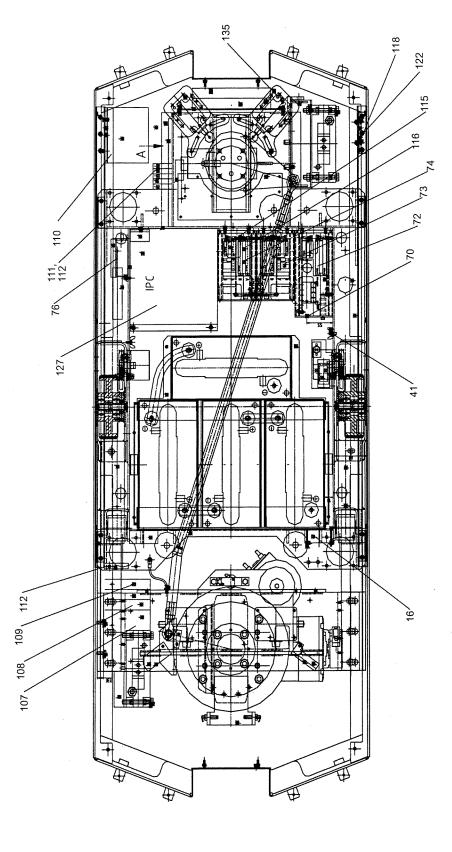


Figure 7.1: Chassis

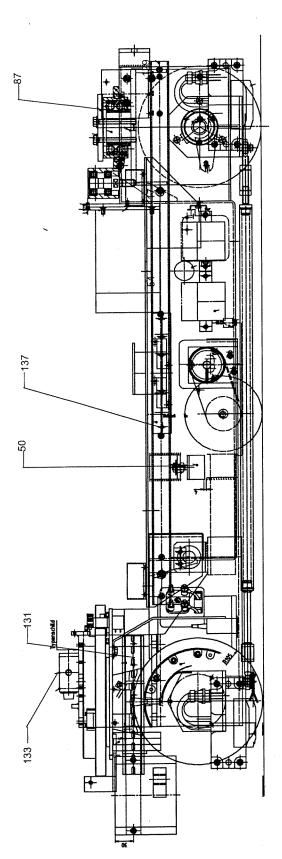


Figure 7.2: Chassis

Table 7.1: Chassis complete C45 PN T000063101

Item	Quantity	Name of the item	Order number
16	1	Fan ASF6	T404052534
41 - not	2	Cable support 3.5x14.9x9.5 mm	T208036008
shown			
44	2	Cable support with screw SESTM-3	T208036207
50	2	Suspension rubber metal type D - rubber buffer	T204031124
54	4	Antistatic cable 2	T000062727
70	1	Main distribution ledge LTC 2,	T000063041
72	1	Power unit – drive, complete LTC 2	T000063032
73	1	Power unit - steering, complete LTC 2	T000063038
74	1	Power unit - stroke, complete LTC 2	T000063035
76	1	Slope level switch	T406054171
87	1	Angular contact ball bearing	T204030509
107	1	Switching device SK28-32 230/12-24 VACDC 2	T406054515
108	1	Emergency stopping device/category 4, EN	T406054600
109	1	Emergency stopping device/category 4, EN	T406054601
110	1	Laser scanner interface LSI 101-121	T210038509
111	1	Relay module UE10-20S2D0	T402042557
112	1	Relay RMMD	T402042226
115	1	PNOZpower-basic unit	T406054598
116	1	PNOZpower-expansion unit	T406054599
117	2	Relay HCR high-current 24 V resistive bridge	T402042513
118	1	High Power Fuse Holder for Fuse Strip	T401041541
122	1	Fuse strip 100/A	T401041542
125 - not shown	1	HF-cable of antenna	T403047536
127	1	IPC-LTC 2	T000063030
129	1	Battery charging contacts for LTC2	T404052538
130	1	LSI-field transformer complete	T000063062
131	1	CAN I/O module 1 LTC 2 complete	T000063064
132 - not shown	1	CAN I/O module 2 LTC 2 complete	T000063065
133	1	Ultrasonic SONAR-BERO	T406054167
135	1	Safety switch series GSS	T406054602
136	1	Sealing Nipple	T409058592
137	1	Power resistor ledge	T000063072



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Table 7.1: Chassis complete C45 PN T000063101

Item Qu	antity Name of the item	Order number
168 - not 1 shown	Cable-box with Resistor L=800mm	T63198
169 - not 1 shown	Cable box with resistor L=1500mm	T63199

# Loud Speaker

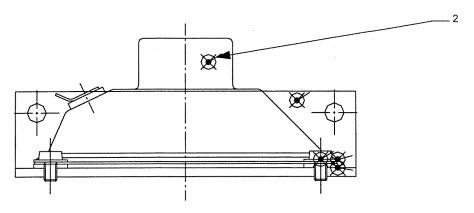


Figure 7.3: Loud speaker

Table 7.2: Loud Speaker PN T000063150

Item Quantity Name of the item Or	der number

# Cover with Harness

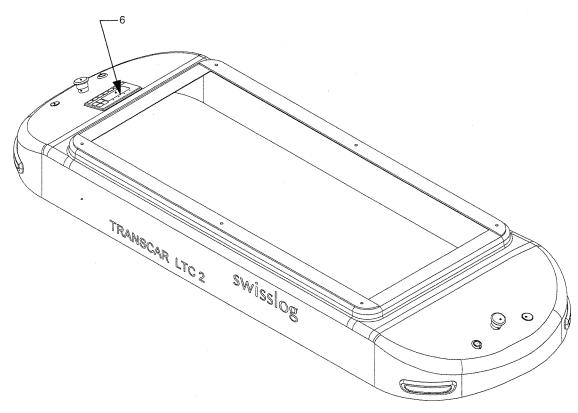


Figure 7.4: Cover with harness

Drawing PN 63191

Table 7.3: Cover with harness, PN T000063191

Item Qu	antity Name of the item	Order number
6 1	Control element OPUS light+ for CAN	T4060546O3

# Resistor Assembly

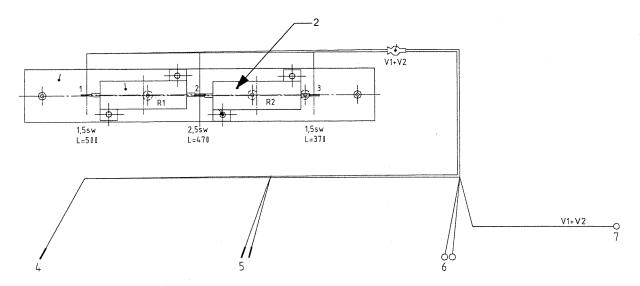


Figure 7.5: Resistor assembly

Drawing PN 63196

Table 7.4: Resistor Assembly, PN T000063196

Iten	n Qua	ntity Name of the item	Order number
2	1	Resistor 100R/30W	T403045866

# Cable Box with Resistor

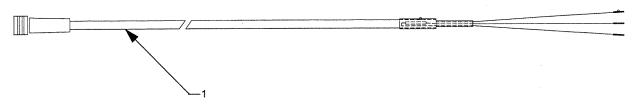
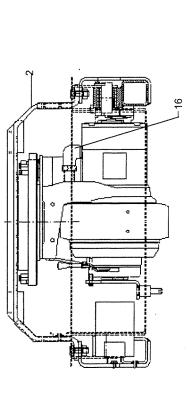


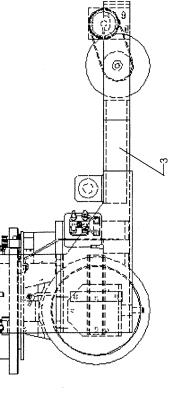
Figure 7.6: Cable box with resistor

Table 7.5: Cable Box with Resistor, PN T000063198

1	1	Cable-Box	T409058176
Iten	n Qua	intity Name of the item	Order number

**Drive Unit** 





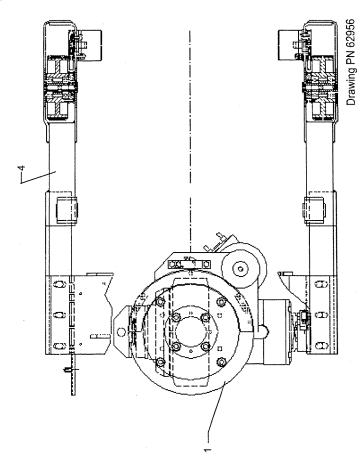


Figure 7.7: Drive unit

*Table 7.6 : Drive Unit, PN T000062956* 

Item	Quantity	Name of the item	Order number
1	1	Hub drive	T000062891
2	1	Drive-support	T000062476
3	1	Connection bracket, compl., left	T000062908
4	1	Connection bracket, compl.	T000062995
16	1	End elbow stopper (Joint)	T207035087

# Wheel Drive

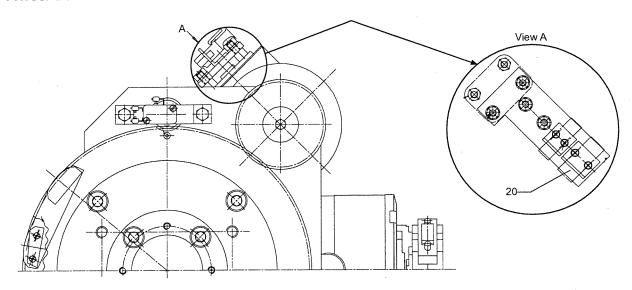


Figure 7.8: Wheel drive

Table 7.7: Wheel Drive, PN T000062891

Item	Quar	ntity Name of the item	Order number
20	1	Wiring harness for LTC2 steering unit	T 000063058

# Connecting Bracket Assembly

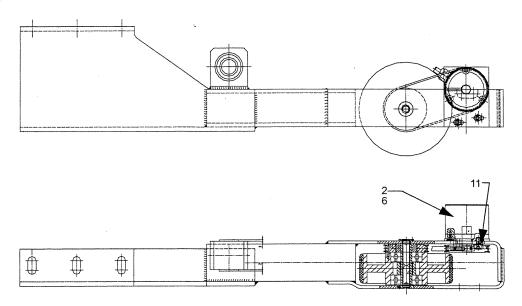


Figure 7.9: Connecting Bracket Assembly

Table 7.8: Connecting Bracket Assembly, PN T000062908

Quant	tity Name of the item	Order number
1	SUBD-metal box with 45° cable lead-in, SubD	T206034528
1	Encoder Assembly, Left	T000063241
1	Washer	T202014044
	1 1 1 1	1 Encoder Assembly, Left

# Steering Wheel and Support

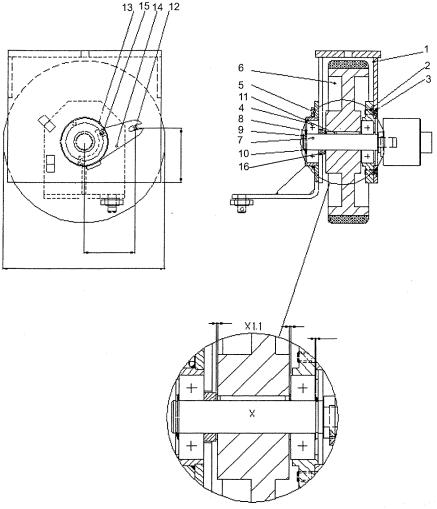


Figure 7.10: Steering wheel and support

Drawing PN 62940

Table 7.9: Steering Wheel and Support, PN T000062940

Item	Quantity	Name of the item	Order number
1	1	Support	T000062941
2	1	Flange 1 compl.	T000062942
3	1	Countersunk-head screw with hexagon socket	T200007016
4	1	Flange 2 compl.	T000062944
5	1	Hexagonal head bolt	T200009022
6	1	Guided wheel	T000062946
7	1	Shaft	T000062947
8	1	Locating disk (shim)	T202014504

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Table 7.9: Steering Wheel and Support, PN T000062940

Item	Quantity	Name of the item	Order number
9	1	Locating disk (shim)	T202014075
10	1	Snap ring	T202018038
11	1	Adjusting Spring	T204032571
12	1	Threaded fastener	T000062948
13	1	Incremental generator for wheels	T403047535
14	1	Lug	T000062949
15	1	Countersunk-head screw with cross recess	T200004088
16	1	Ring	T000062982

# Pedestal Unit/Socket Blind

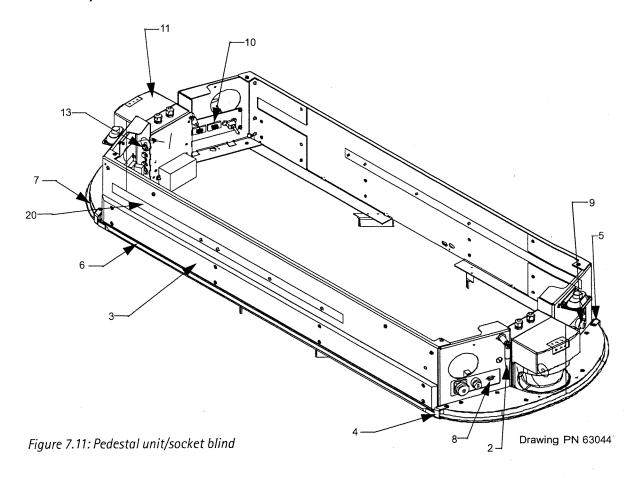


Table 7.10: Pedestal Unit/Socket Blind, PN T000063044

Item	Qua	ntity Name of the item	Order number
1	1	Antistatic cable 2	T000062727

Table 7.10: Pedestal Unit/Socket Blind, PN T000063044

Item	Quantity	Name of the item	Order number
2	1	Rubber-insulated antenna	T403047537
3	1	Bumper ledge 01	T000062933
4	1	U-Plate 01 cable-protection part	T000063059
5	1	U-Plate 01-GS cable-protection part	T00006306O
6	1	Minicontact ledge 01	T000062935
8	1	Blind plate 02	T000063053
9	1	Mounting plate for switches	T000063054
11	1	Laser scanner PLS 101-312	T21003851O
13	1	Laser support set	T2100385O5
23	1	OPTICAL SENSOR WT4-2	T403047239
49	1	Pilz Button, Red Key, Ronis 455 (24V CNTR main switch key)	T406054221

# **Mounting Plate Assembly**

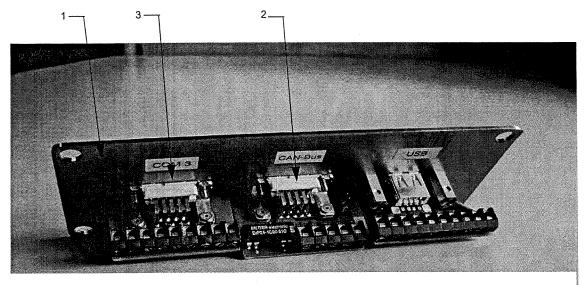


Figure 7.12: Mounting Plate Assembly

Figure 7.13: Mounting Plate Assembly PN T000063209

lten	n Quan	tity Name of the item	Order number
1	1	Mounting plate 02 for SUB-D Plugs	T000063055
2	1	LP CAN adaptor	T000063114
3	1	LP SUB - D adaptor	T000063116

# LP USB Adaptor

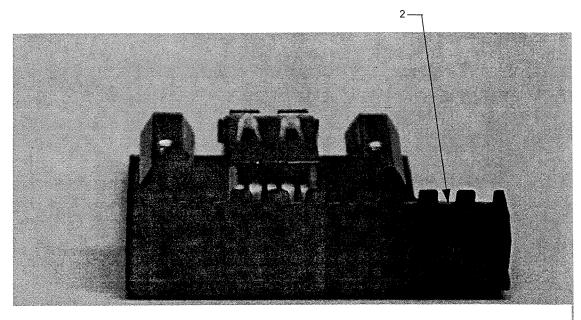


Figure 7.14: LP USB Adaptor

Table 7.11: LP USB Adaptor, PN T000063212

Iten	n Quar	ntity Name of the item	Order number
2	1	LP CAN adaptor	T000063114
3	1	LP SUB - D adaptor	T000063116

# Mounting Plate Assembly

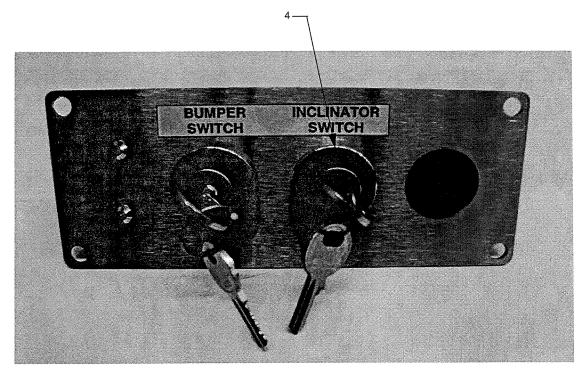


Figure 7.15: Mounting Plate Assembly

Table 7.12: LP USB Adaptor, PN T000063211

Item Quantity Name of the item	Order number
4 1 Key-selection switch	T407055502

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Drawing PN 62902

Lifting Unit

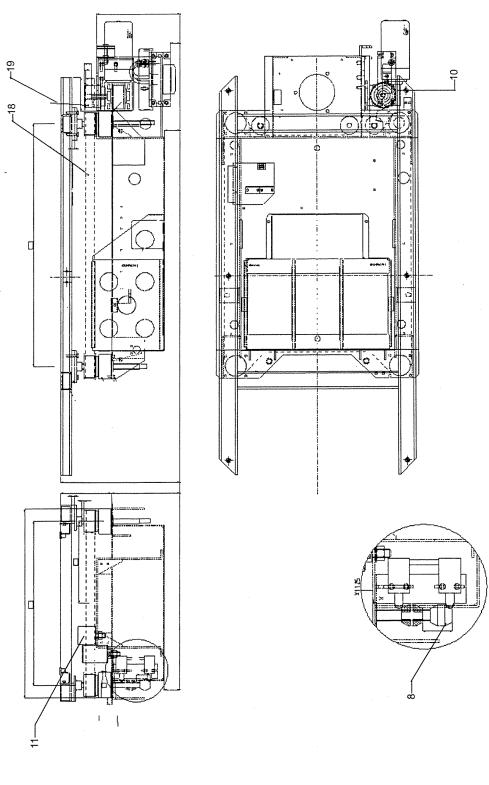


Figure 7.16: Lifting unit identification

*Table 7.13 : Lifting Unit, PN T000062902* 

Item	Quantity	Name of the item	Order number
8	1	Index cam	T000062488
10	1	Tightening pulley	T000062492
11	1	Short belt roller	T000062992
18	1	Cog belt	T204032567
19	1	Cog belt pulley lifting motor	T000062479

### Position Switch

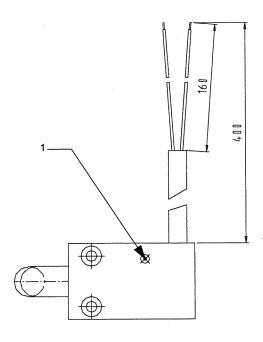


Figure 7.17: Position Switch

Drawing PN 63149

Table 7.14: Position Switch, PN T000063149

Item	o Qua	nntity Name of the item	Order number
1	1	Position switch type XCM - A102-2 roll	T406054516

# Steering Bracket

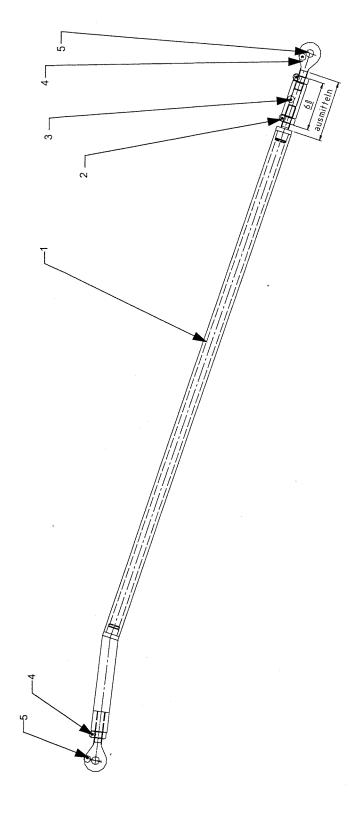


Figure 7.18: Steering bracket complete

Drawing PN 62962

Table 7.15 : Steering Bracket Complete, PN T000062962

	item Quantity Manie of the Item	
<del></del>	Steering bracket (welded)	T000062969
2 1	Hex nut	T201011054
3 1	Tensioning nut	T204032511
4	Hex nut	T201011009
5 1	Link joint (ball-and-socket joint)	T204031504

## Manual Service Recharger

Table 7.16: Manual Service Recharger

Item	Quan	ntity Name of the item	Order number
1	1	Swisslog manual service recharger	D480G24

# Wiring Diagrams

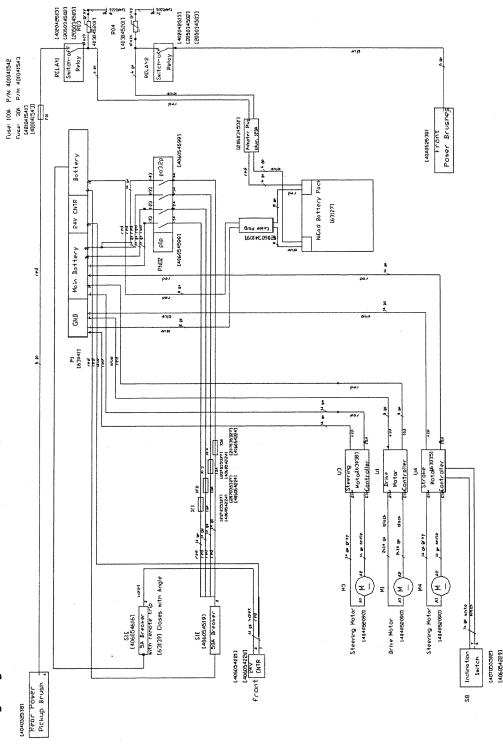


Figure 7.19: Power Distribution wiring diagram

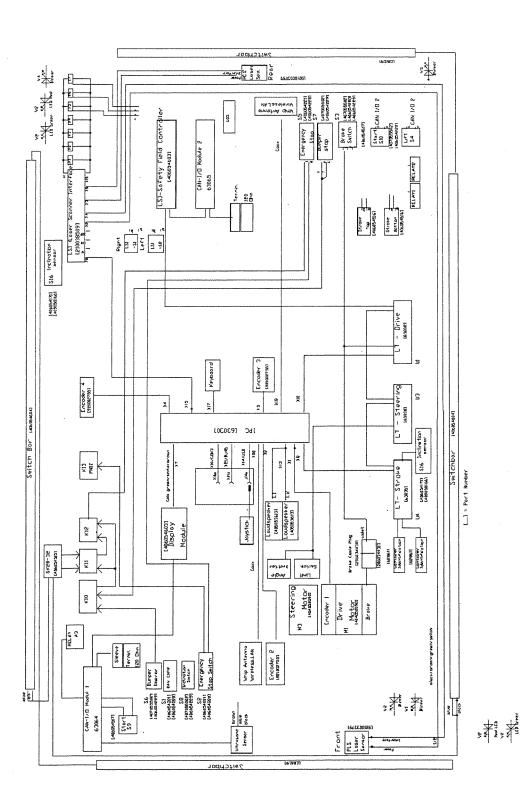
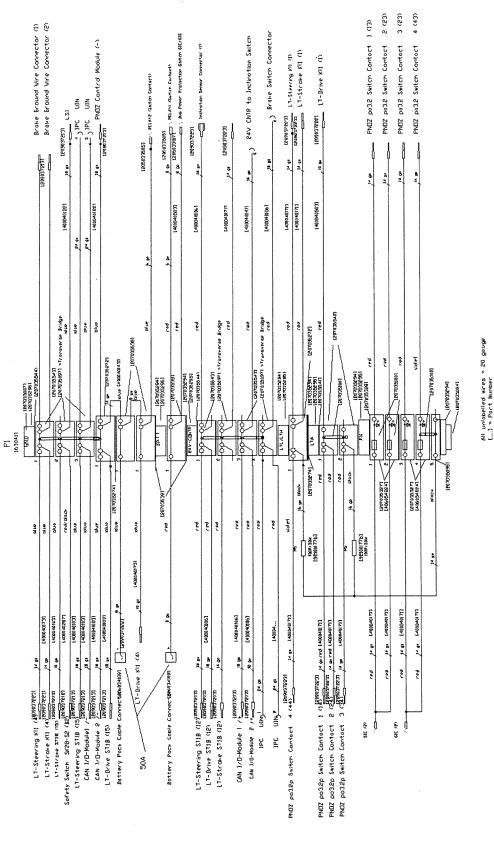


Figure 7.20: Signal Distribution wiring diagram



AGV TransCar LTC2 > Wiring Diagrams

Figure 7.21: Main Interconnection Strip (P1)

X1 Input Encoder 1- Drive Wheel
X2 input Encoder 2 - Left Side Wheel
X3 Input Encoder 3 - Bock Steering Wheel
X4 Input Encoder 4 - Right Side wheel
X5 Butput Encoder 4 to LSI 1
X6 Butput Encoder 4 to LSI 2
X7 CAN DJI
X8 CAN JJI
X8 CAN IN
X9 VGA
X10 Butput Encoder 1 (Drive Wheel) to LT- Drive

X15 CDN2 RS232
X16 CDN3 RS232
X17 Keyboord
X19 Reor Wireless LAN Antenno 1 , isoloted fram housing
X20 Front Wireless LAN Antenno 2 , isoloted from housing
UIN 24V DC Power

318 4881,3 RS232

AGV TransCar LTC2 > Wiring Diagrams

Figure 7.22: IPC Connector Plate

Figure 7.23: IPC Wiring showing Encoders, LSI, and LT drive

AGV TransCar LTC2 ▶ Wiring Diagrams

Reor Antenno

Frant Antenno

Figure 7.24: IPC CAN interface and peripheral wiring

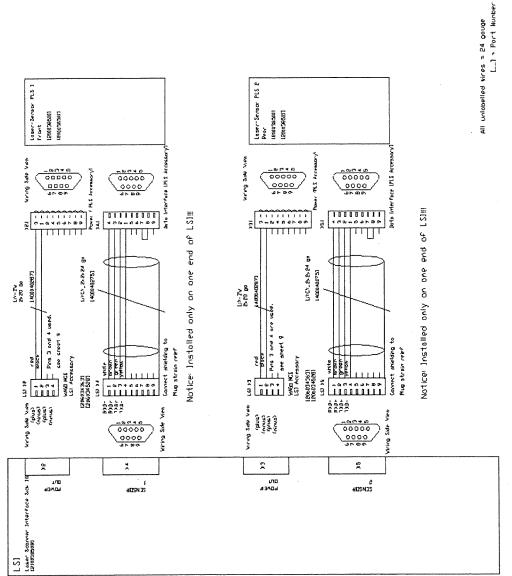
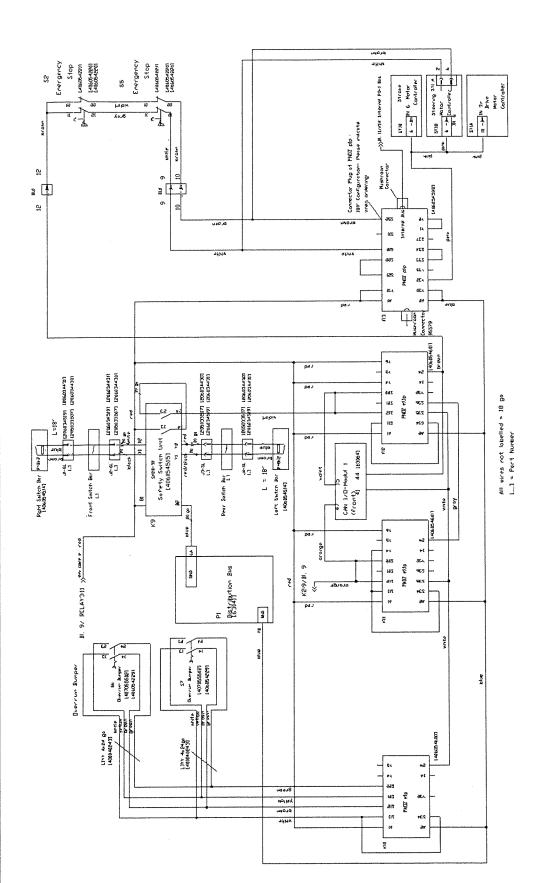


Figure 7.25: LSI to Laser Sensor connector wiring/pinouts

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Figure 7.26: LSI (Laser Scanner Interface) Wiring Diagram



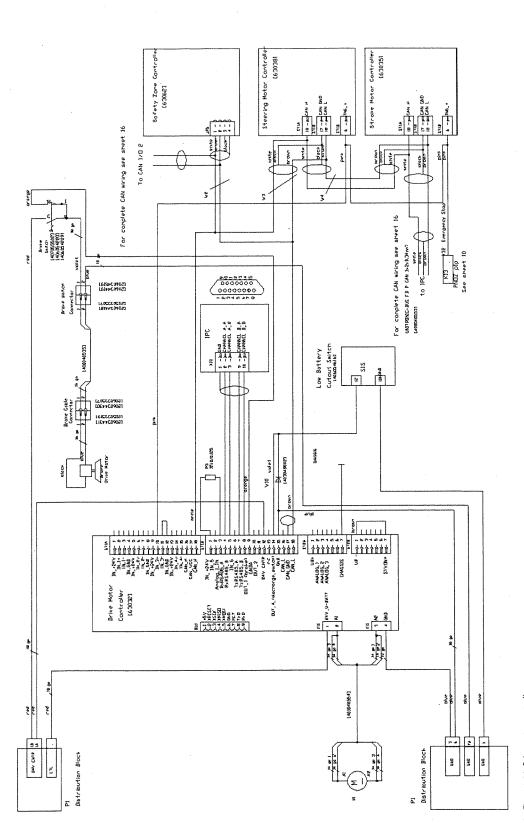
AGV TransCar LTC2 ► Wiring Diagrams

Figure 7.27: Emergency Stop Power Interrupt Wiring Diagram

Figure 7.28: Power drive battery circuit, showing pickup brushes

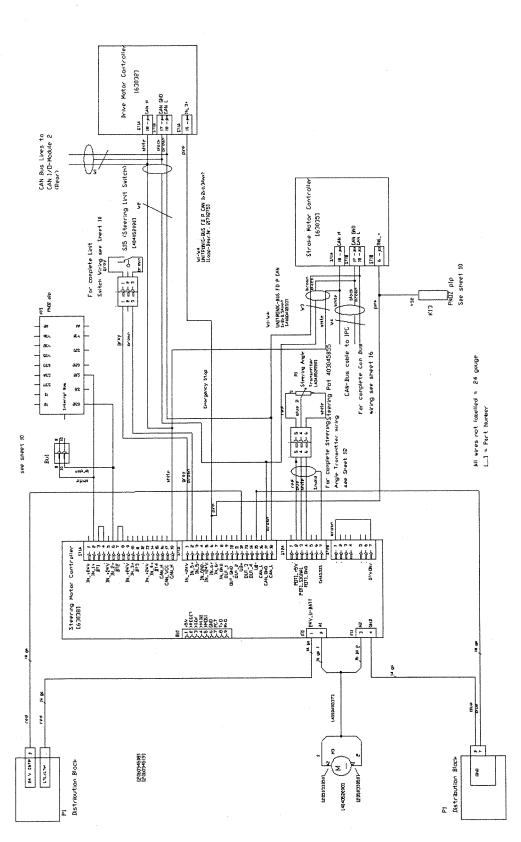
AGV TransCar LTC2 > Wiring Diagrams

Figure 7.29: LTC 2 cable harness for new steering unit



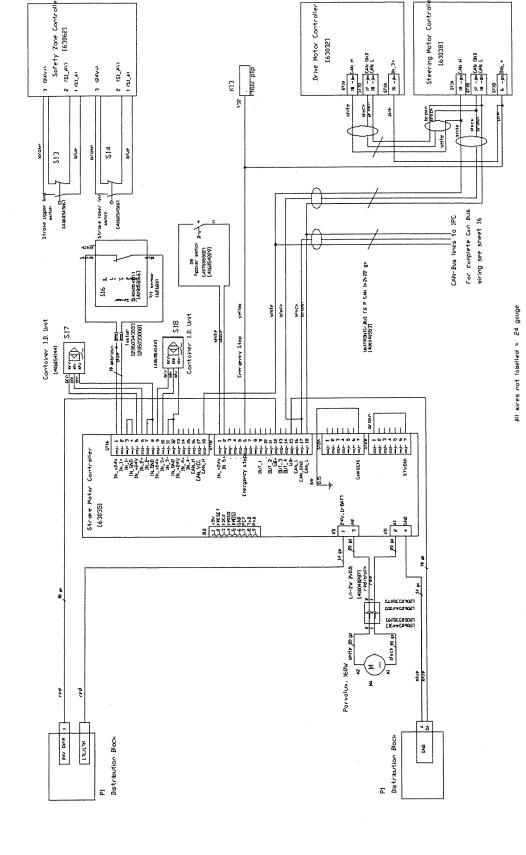
AGV TransCar LTC2 ▶ Wiring Diagrams

Figure 7.30: Drive motor controller



AGV TransCar LTC2 ▶ Wiring Diagrams

Figure 7.31: LTC 2 steering motor controller

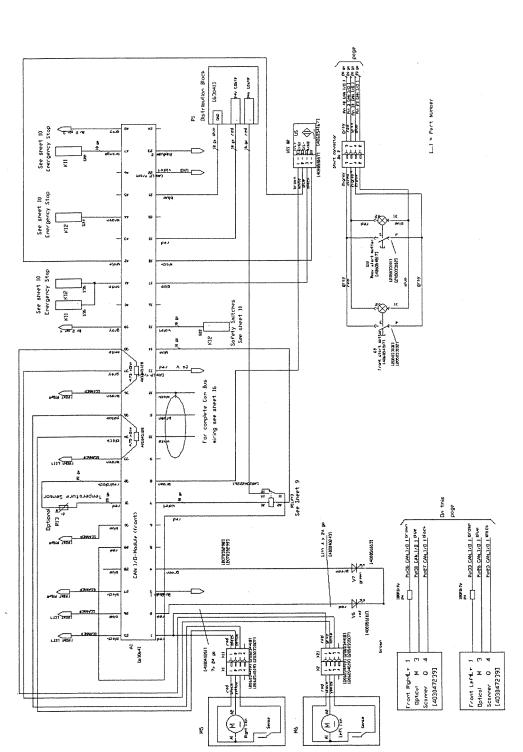


AGV TransCar LTC2 🕨 Wiring Diagrams

Figure 7.32: Stroke motor controller

All wires not lobelled = 24 gouge

Figure 7.33: CAN Bus overall wiring diagram



AGV TransCar LTC2 ▶ Wiring Diagrams

Figure 7.34; CAN I/O module front connector

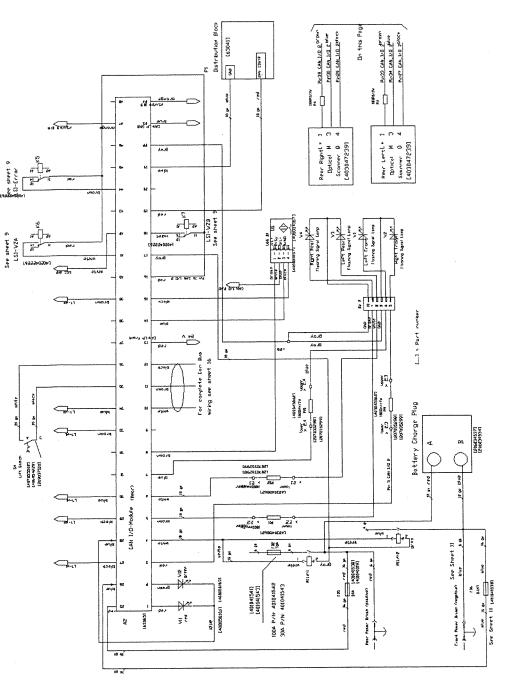
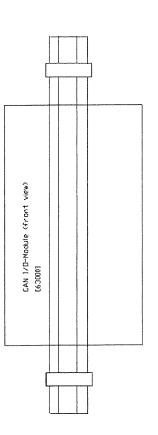


Figure 7.35; CAN I/O module rear connector



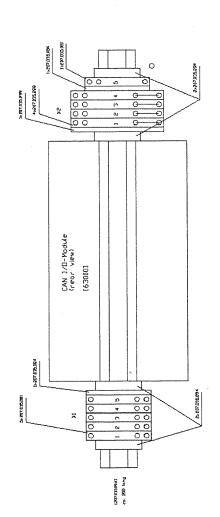




Figure 7.36: LTC 2 terminal strip view from front and back

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Figure 7.37: LSI protection field control board



# Appendix A: Specifications

### **Technical Data**

### Mechanical

Table A.1: Mechanical Specifications

ltem	Specification	
Length	1700 mm (66.93 in)	
Width	616 mm (24.25 in)	
Height		
► Container platform lowered	346 mm (13.62 in)	
► Container platform lifted	386 mm (15.20 in)	
Service weight		
► Lead batteries	230 kg (507.06 lb)	
► NiCd batteries	250 kg (551.16 lb)	
Max. load (including container)	400 kg (881.85 lb)	
Speed		
▶ vmin	0.1 m/s (0.33 ft/s)	
► vmax	1.2 m/s (3.94 ft/s)	

### Electrical

Table A.2: Electrical Specifications

Item	Specification
Rated voltage	24V
Battery capacity (total)	
► Lead batteries	96Ah (8x12V/24Ah)
► NiCd	100Ah (4x6V/100Ah)

### Vehicle Operating Specifications

Table A.3: Vehicle Operating Specifications

ltem	Specification
Range	11500 m (7.15 mi or 37,729.96 ft)
Tracking tolerance (lateral)	+/- 15 mm (0.59 in)
Positioning accuracy in driving direction	+/- 25 mm (0.98 in)
Noise rating	>70 dB
Vibration rating (control console)	N/A

### **Operating Conditions**

Table A.4: Operating Conditions

ltem	Specification
Temperature	
Minimum	5°C (41°F) unless specified differently
Maximum	35°C (95°F) unless specified differently
Maximum Humidity	95%, not condensating

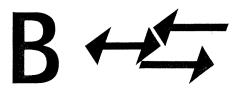
### Floor Specifications

Table A.5: Flooring specifications

Variable	Value
Material	Rubber (caoutchuc)
Abrasion	>110 mm³ at load of 5 N (0.0067 in³ at load of 1.12 lb force)
Pressure	> 500 N/cm³ (1.12 lb force)
Resistance	> 1 GigaOhm on 20 cm <sup>2</sup> at 20°C and 50% relative humidity (> 1 GigaOhm on 3.1 in <sup>2</sup> at 68°F and 50% relative humidity)
Friction coefficient	> 0.5
Temperature	5° - 35°C (41 - 95°F)
Humidity	20% - 80%
Floor evenness	4mm per m (0.157in per 39.37in)
at battery charging station	3 mm per m (0.118in per 39.37in)
Gaps in floor (tiles)	> 5mm (0.197 in)
Maximum slope	5%
Route markings	Per local regulations

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# Appendix B: Vendor Information

### Manufacturer Information

### **NiCd Battery**

### **SAFT Batteries**

#### Models:

- ► Right terminal configuration = 280636 RD
- ► Left terminal configuration = 280638 RG.

#### www.saftbatteries.com

Saft America Inc.

711 Industrial Blvd

Call 11 Call 1 Cal

Valdosta GA 90441 31682 Nürnberg USA GERMANY

Tel.:+1 229 245 3015 Tel.:+49 911 94174-0 Fax.:+1 229 247 8486 Fax.:+49 911 426144

### Safety Data Sheet

http://www.saftbatteries.com/130-Catalogue/PDF/msds\_sinter\_pbe\_us.pdf

### Manual

http://www.ziggr.com/ftp/evl/stmuk.pdf

### **Lead Battery**

### Yuasa Battery GmbH

Model: NPC 24-12

Wanheimer Straße 47 · 40472 Düsseldorf · Germany

Tel.: ++ 49 (0) 2 11/4 17 90-0

Fax: ++ 49 (0) 2 11/4 17 90-11

info@yuasa-battery.de · www.yuasa.de

### **Drive System**

### Sauer-Danfoss

Vertriebszentrale Offenbach Main

Sauer-Danfoss GmbH

Postfach 10 05 55

D-63005 Offenbach

Carl-Legien-Straße 8

D-63073 Offenbach

phone: + 49 (69) 47892-800

fax: + 49 (69) 47892-816

### Proximity Laser Scanner (PLS)

### **SICK AG**

Sebastian-Kneipp-Str. 1

79183 Waldkirch

Phone +49 7681 202-0

Fax +49 7681202-3863

**Technical Specifications** 

Available at www.sick.de

**Product Information** 

Available at www.sick.de

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# C

# Appendix C: Industrial Personal Computer Updates

### **Updating the Industrial Personal Computer**

This appendix provides the procedures for updating the IP address in the host file and for installing an IPC software upgrade.

### Updating the IP Address

When replacing the Industrial Personal Computer (IPC) the correct IP address must be referenced in the host file.

### ► To update the IP address:

- 1 Log in using the "root" log in and password.
- 2 Change to the /etc directory using the following command: >>cd /etc
- 3 Change the read-only mode of the compact flash to read/write mode using the following command: >>mount -oremount,rw /
- 4 Change the hostname using the editor "joe" with the following command: >>joe hostname
- 5 Change the hostname to the new name.
- 6 Save the changes and leave the editor using Ctrl K X.
- 7 Change the address and name in hosts using the following command: >>joe hosts
- 8 Change the IP address and name to the correct values.
- 9 Save the changes and leave the editor with Ctrl K X.
- 10 Change the TCP/IP address using the following command: >>cd /etc/pcmcia

### >>joe network.opts

- 11 Change the address to the correct value.
- 12 Save the changes and leave the editor with Ctrl K X.
- 13 Change the read/write mode of the compact flash to read-only using the following command: >>mount -oremount,ro /
- 14 Reboot the IPC using the following command: >>reboot

- 15 After the reboot and the automatic restart of the application, you can see the prompt for the IPC. (i.e.: tc11:\)
- 16 Load the graph file to the IPC from the WIN2000 PC TCMS with the pscp program using the following command.
  - >>pscp graphname.graph tamer@tc11:/home/tamer/MCA2/telelift/etc/
- 17 Copy the .AttributeTree filef rom the WIN2000 PC TCMS to the IPC and rename VehicleIndividual.AttributeTree on IPC tc11 using the following command:

```
>>pscp tcll.AttributeTree
```

tamer@tc11:/home/tamer/MCA2/telelift/etc/
VehicleIndividual.AttributeTree

18 Restart (switch OFF/ON) or reboot of the IPC.

### Installing an IPC Software Upgrade

- 1. Copy the new software version from the WIN2000 PC (TCMS) to the IPC with the pscp tool using the command:
- >>pscp MCA2-Version1-6.tgz tamer@tcX:/home/tamer/
- 2. Log in to the IPC with the putty tool
- >>putty
- 3. Create a backup zip file for the previous software version on the IPC.
- >>cd /home/tamer
- >>tar czf MCA2Old.tgz MCA2
- 4. Copy the directory /home/tamer/MCA2/telelift/etc
- >>cd /home/tamer
- >>cp -r MCA2/telelift/etc backup/
- 5. Stop the application.
- >>startstopMCA stop /home/tamer/MCA2/etc/telelift.startstop
- 7. Remove the previous MCA directory.
- >>rm -rf MCA2
- 8. Unzip the new MCA software ".tgz" file.
- >>tar xzf MCA2-Version1-6.tgz
- 9. Copy the directory /home/tamer/backup/etc to /home/tamer/MCA2/telelift/
- >>cp -r backup/etc MCA2/telelift/
- 10.Start the application
- >>startup-scri

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### LAC+USC HEALTHCARE NETWORK POLICY

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Subject:		Original Issue Date:	4/02/85	Policy # <b>302</b>		
RISK MANAGEMENT PROGRAM		Supersedes:	5/10/05 Effective Date:		ate: 10/1	5/08
Departments Consulted: Office of Risk Management Quality Improvement	Reviewed & Approved Attending Staff Ass Executive Comm Network Executive	sociation nittee	Chief (Sig	nature on f Medical O nature on f Executive (	fficer File)	

### PURPOSE

To ensure the LAC+USC Healthcare Network maintains a risk management program in accordance with the Department of Health Services guidelines.

### POLICY

The LAC+USC Healthcare Network shall establish and maintain a risk management program that identifies and evaluates possible risks that may be potentially harmful to patients, visitors, or employees and result in financial loss.

### **PROCEDURE**

The risk management program shall be the responsibility of the LAC+USC Healthcare Network management and shall include:

- Administrative support services required to manage communications, correspondence, tracking of medical devices, equipment, claims, and liability suits.
- Record management of the Event Notification Reports. Identification of trends and evaluation when further action is necessary. Screening cases for potential system-wide issues and forward these issues to the Patient Safety Committee.
- Overseeing and reporting Root Cause Analysis (RCA) investigations of sentinel events and those critical events deemed of sufficient severity to require RCA.
- Continuous monitoring for compliance with regulatory requirements, accreditation standards, and legislative issues, i.e., medical device reporting to the federal Food and Drug Administration.
- A loss prevention program to educate various levels of hospital staff to minimize losses.

The Office of Risk Management shall coordinate the responses to malpractice litigation, liaison with defense counsel, maintain health/medical records of cases in litigation, and respond to interrogatories and other legal notices.

DISTRIBUTION: LAC+USC Healthcare Network Policy Manual

Subject:

RISK MANAGEMENT PROGRAM

Effective Date:
10/15/08
10/15/08
302
Chief Executive Officer's Initials:
(Initials on File)

### **RESPONSIBILITY**

Administration
Quality Improvement Department
Office of Risk Management

### PROCEDURE DOCUMENTATION

Attending Staff Manual Nursing Services & Education Policy Manual

### REFERENCE

DHS Policy #924, Risk Management Program

Joint Commission Standards (Improving Organization Performance)

### **REVISION DATES**

February 11, 1999; March 12, 2002; May 10, 2005; October 15, 2008



### POLICIES AND PROCEDURES

**SUBJECT:** REMOTE ACCESS POLICY FOR OUTSIDE VENDORS

**POLICY NO:** 935.041

### PURPOSE:

The purpose of this policy is to define standards for connecting to any DHS network from any host. These standards are designed to minimize the potential exposure to DHS from damages that may result from unauthorized use of a vendor's resources. Damages include the loss of sensitive or company confidential data, intellectual property, damage to public image, or damage to critical DHS internal systems.

#### POLICY:

The computer systems, networks and data repositories of the Department of Health Services' networks are critical resources and must be protected against unauthorized and/or malicious access. Authorized users of DHS computer systems, networks and data repositories may be permitted to remotely connect to those systems, networks and data repositories for the conduct of DHS-related business only through secure, authenticated and carefully managed access methods.

All vendors who conduct business with any DHS facility must complete and sign a Business Associate Agreement, in accordance with DHS Policy 361.20, Business Associate Agreement.

It is the responsibility of County approved vendors and their employees, contractors, and agents with remote access privileges to any DHS networks to ensure that their remote access connection to any of our applications is given the same consideration as the user's on-site connection.

DHS facilities will have and maintain complete control of access into their networks. DHS facilities will open up the portal when access is needed and will shut down portal access when the vendor has completed their required work.

Secure remote access must be strictly controlled. Control will be enforced via RSA<sup>™</sup> one-time password tokens that will be assigned accordingly. At no time should any outside vendor provide their token, login or password to anyone.

County approved vendors and their employees, contractors and agents with remote access privileges must ensure that their vendor-owned personal computer or workstation, which is

APPROVED BY: MA/ MMM

EFFECTIVE DATE:

August 1, 2008

**REVIEW DATES:** 

SUPERSEDES:

January 15, 2008

## DEPARTMENT OF HEALTH SERVICES COUNTY OF LOS ANGELES

**SUBJECT:** REMOTE ACCESS POLICY FOR OUTSIDE VENDORS

**POLICY NO.:** 935.041

remotely connected to any DHS network, is not connected to any other network at the same time.

All remote vendor or business partner connections to the DHS network must be secured with industry standard encryption (e.g., SSL, SSH, IPSEC, etc.) and authentication mechanisms. Connections should be restricted by IP address and service (port). Back-end systems that are accessed through the remote connections must be properly secured (locked down to the extent possible) to ensure other portions of the DHS network cannot be accessed from those devices.

The remote connections and related activities must be auditable and reviewed for appropriateness on a regular basis by the responsible DHS system administrator(s). Remote connection audit logs must be retained for at least one year. Audit logs must be provided to the DHS IT Security & Compliance Division upon request.

All hosts, including personal computers, connected to any DHS internal networks via remote access technologies must use the most up-to-date anti-virus software <u>as determined by DHS Information Technologies (DHS/IT).</u>

Personal equipment used to connect to any DHS network must meet all DHS remote access requirements.

### **CROSS REFERENCES:**

Board of Supervisors Policy 6.101, Use of County Information and Technology Resources DHS Policies:

935.00, Information Technology and Security Policy 935.04. Information Access Management

**EFFECTIVE DATE**: August 1, 2008

SUPERSEDES: January 15, 2008 PAGE 2 OF 2